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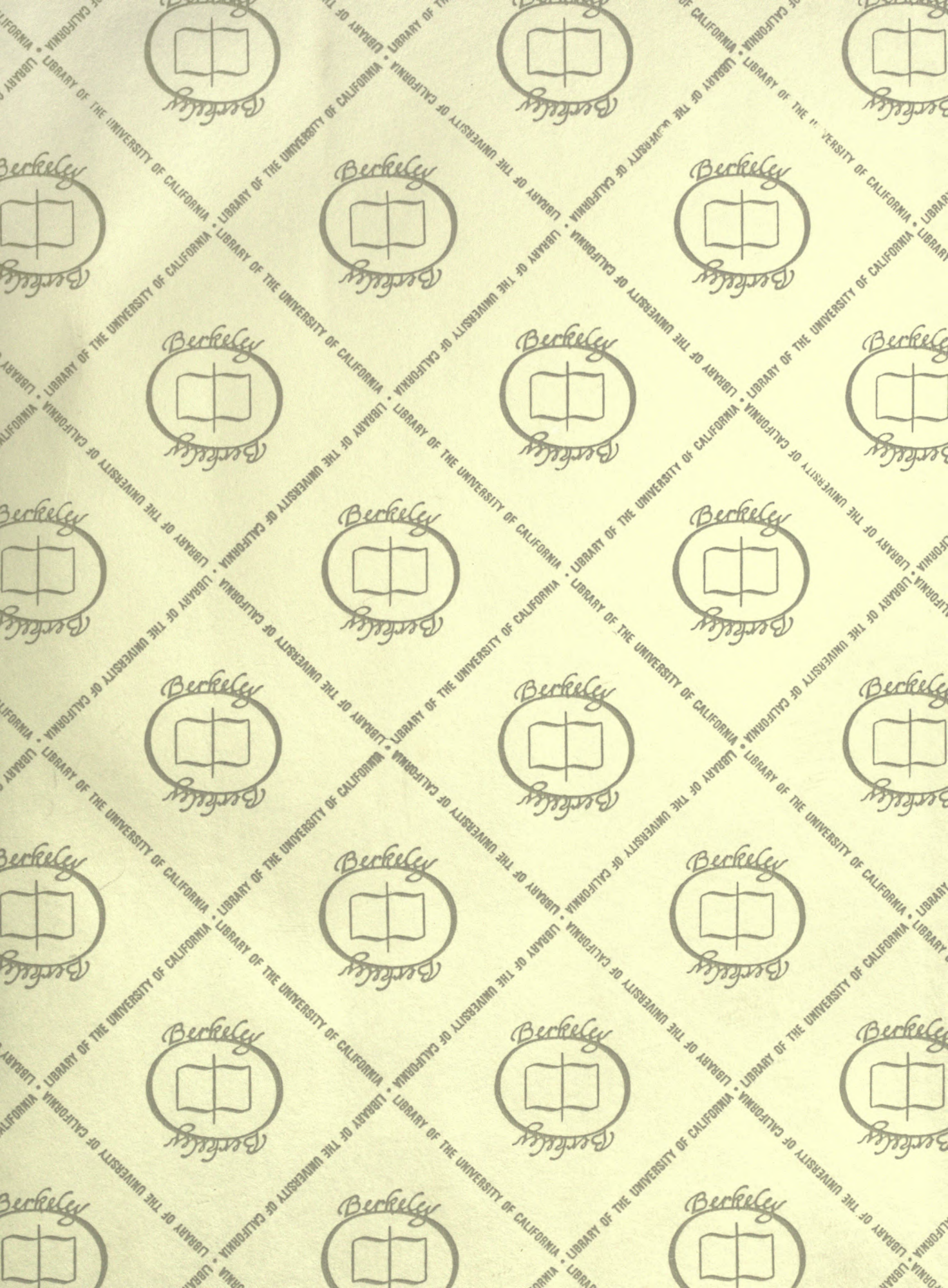


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THE  
NATIONAL COLLECTION  
OF  
HEADS AND HORNS

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PART I

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NEW YORK ZOOLOGICAL PARK  
183D STREET AND SOUTHERN BOULEVARD  
NEW YORK  
MAY 1, 1907

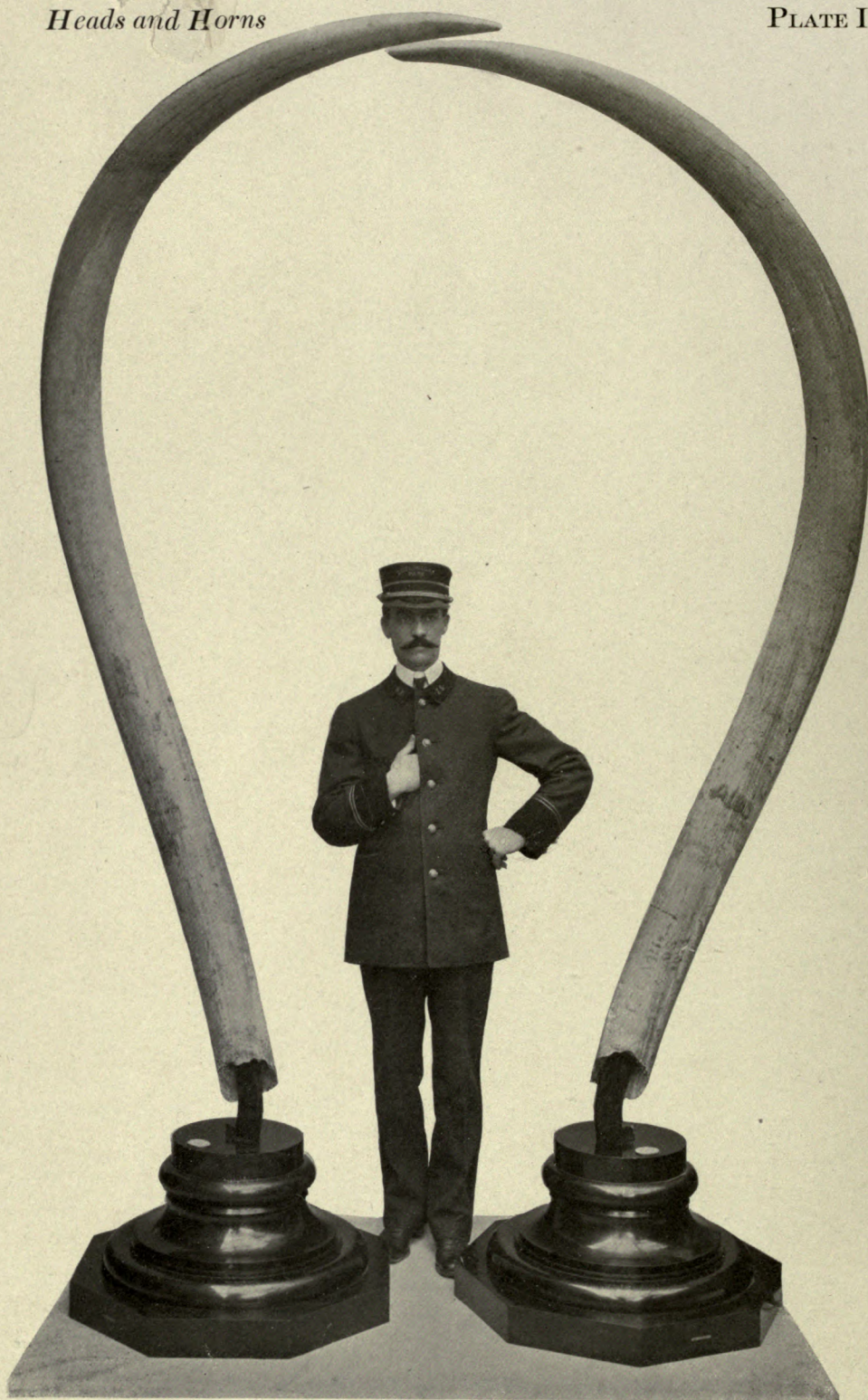












TUSKS OF AN AFRICAN ELEPHANT, (*Elephas africanus*)  
The longest ever known from a living species  
Gift of Charles T. Barney, Esq.



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# THE NUCLEUS OF A NATIONAL COLLECTION OF HEADS AND HORNS\*

*By William T. Hornaday, Sc.D.*

**A**MONG nature-lovers, sportsmen, and also the general public, interest in the horned animals of the world is rapidly increasing. This concentration of attention upon an order of mammals, which ever has commanded a large share of public interest, is partly due to the rapid disappearance, and in many cases the impending extinction, of its numbers and its species. At last it is realized that without their rightful quota of wild life of the larger species, the grandest mountains, the finest forests, and the most fertile plains become dull and commonplace.

To know thoroughly the horn-bearing mammals of the world is to know the world also. Savage races of men may be, and usually are, easily spoiled by contact with modern civilization, and the natural edge of native character is quickly lost by contact with the grinding wheels of modern life and thought. But not so the wild animals. Contact with man only serves to sharpen their wits, point their perceptive powers, and stimulate new lines of thought and action making for self-preservation.

It is natural for one who is interested in a special group of animal forms to desire a collection which in one way or another will represent its members. Of groups which embrace only small-sized individuals, it is often possible for one man to possess a large assortment of species and individuals. But in the gratification of a taste involving individuals of large bulk, the limitations are many and severe. With such important forms as the large hoofed mammals of the world, it is not desirable that many men should be animated by the desire for large collections. The undue gratification of too wide-spread a desire for heads and horns, irrespective of their origin, would mean great and deplorable slaughter "for commercial purposes." A collection limited to personal trophies won by the owner is quite another matter, chiefly because of its wholesome limitations; and in these days, *no sportman or naturalist should shoot more animals than he preserves.*

\*Presented to the New York Zoological Society, by the Author, December 19, 1906.



In America, museums generally are treating the Order *Ungulata* merely as an integral part of the great living world, which is not to be unduly exploited at the expense of other zoological groups of equal scientific importance. In the zoological parks and gardens, the limitations upon the collections of hoofed animals are numerous, and it is possible to procure and exhibit only a few representative species, which as far as possible must typify the whole vast series.

Nevertheless, the desire to behold complete collections of large-game specimens springs eternal in the human breast. The wish for a comprehensive and all-embracing exhibit of the world's horn-bearing animals is both natural and legitimate. To us, the logical sequence of the situation is a national collection of heads and horns, as fine and as nearly complete as American sportsmen and travelers can make it, located in the New York Zoological Park, and owned and maintained in perpetuity by the New York Zoological Society.

A survey of the ways and means that are available for the attainment of such an end quickly leads to the conclusion that a well-considered plan, properly inaugurated and diligently pursued, would lead to a successful result. There is reason for the belief that a collection founded on lines sufficiently broad and dignified to command the respect of the sportsmen of America, would receive from them active support sufficient to guarantee its ultimate success. A collection so large, so rich in fine specimens, and so nearly complete in species as to command national and international respect, surely would possess sufficient zoological value to make its existence and its increase well worth while. There are few, if any, American sportsmen who will not welcome the idea of a great national collection of ungulate heads and horns which in time will rank with the best collections of Europe.

Naturally, in the founding of such a collection, the standards must be fixed high, and the conditions of admission must be reasonably severe. No specimen should be accepted without a specific reason to justify its presence. Perhaps the first great object to be sought should be zoological completeness. That once attained, mediocrity should be weeded out, and the average of excellence should constantly rise.

There should be two series of specimens, both of which eventually should be made complete. The first should be zoological, the second geographical, and each should command an abundance of space. The first should be arranged in accordance with the system of Nature, to show evolution and relationships. Dull indeed is the imagination which can not foresee the intense interest which





SKULL AND HORNS OF SIBERIAN ARGALI, (*Ovis ammon*)  
Photographed in the Zoological Park



would attach to certain groups, such for example as the *Cervidae*, when it is possible for the eye to comprehend at one sweep the long line of forms related to the Altai Wapiti. Imagine, also, the radiation of the genus *Ovis* from western Mongolia southward to India, westward to Sardinia and Morocco, and northeastward by the grand loop to Kamchatka, Alaska, and Mexico.

The second series naturally would be created to display the ungulate resources of the continents; and herein would maps of the geographical distribution of families, of genera, and of species be strongly in evidence. In this series would be shown the centers of distribution and the culminating points of many species popular with American sportsmen and naturalists. Here would be displayed or deposited an endless series of maps and pictures illustrating the haunts and home life of important species. Here would naturally be gathered together such a collection of photographs of living wild animals, both in their haunts and in captivity, as never yet has been formed. The records of big game which naturally would accumulate in the national collection, soon would represent great zoological value.

There are many reasons why a national collection of heads and horns should be formed and displayed in New York, rather than elsewhere. The metropolis of the western continent is the natural home of the greatest educational collections of America. Hither come, sooner or later, all American sportsmen and naturalists, and the majority of those who visit our continent from abroad. New York is truly a pan-American city. Its Zoological Society is in keen sympathy with the proposition, and offers the guarantee of space and permanency which is absolutely essential to success. The natural home of such a collection as that proposed is in the beautifully forested grounds of the Zoological Park, surrounded by the living representatives of now sixty-five—but presently a hundred—species of hoofed animals. Furthermore the Zoological Park already enjoys the support and co-operation of a large number of American sportsmen who are specially interested in the ungulates of the world.

In England practically all British sportsmen pour their finest and rarest horned trophies into the South Kensington Museum. Very naturally, the result is a collection of ungulates which is at once the envy and the despair of Americans. As yet no American museum possesses a collection which is even second to it; and we greatly fear that, for reasons only too apparent, no museum on this side of the Atlantic ever will rival that marvelous gathering of hoofed and horned rarities.



That American sportsmen and travelers should unite in forming here a collection of heads, horns and records worthy of this great continent, surely is not too much to hope for. For several years past, Mr. Madison Grant, Secretary of the New York Zoological Society, and the writer have desired that the Society should possess and exhibit in its Zoological Park a fine collection of heads, horns and records which should be of practical value. That desire has finally crystalized in a plan for a national collection, as herein briefly described.

As evidence of an interest in the matter, the writer has presented to the Zoological Society his collection of more than one hundred heads and horns, to serve as the nucleus of the proposed national collection. In offering a few notes regarding the "nucleus" itself, an outline of the greater collection is naturally suggested.

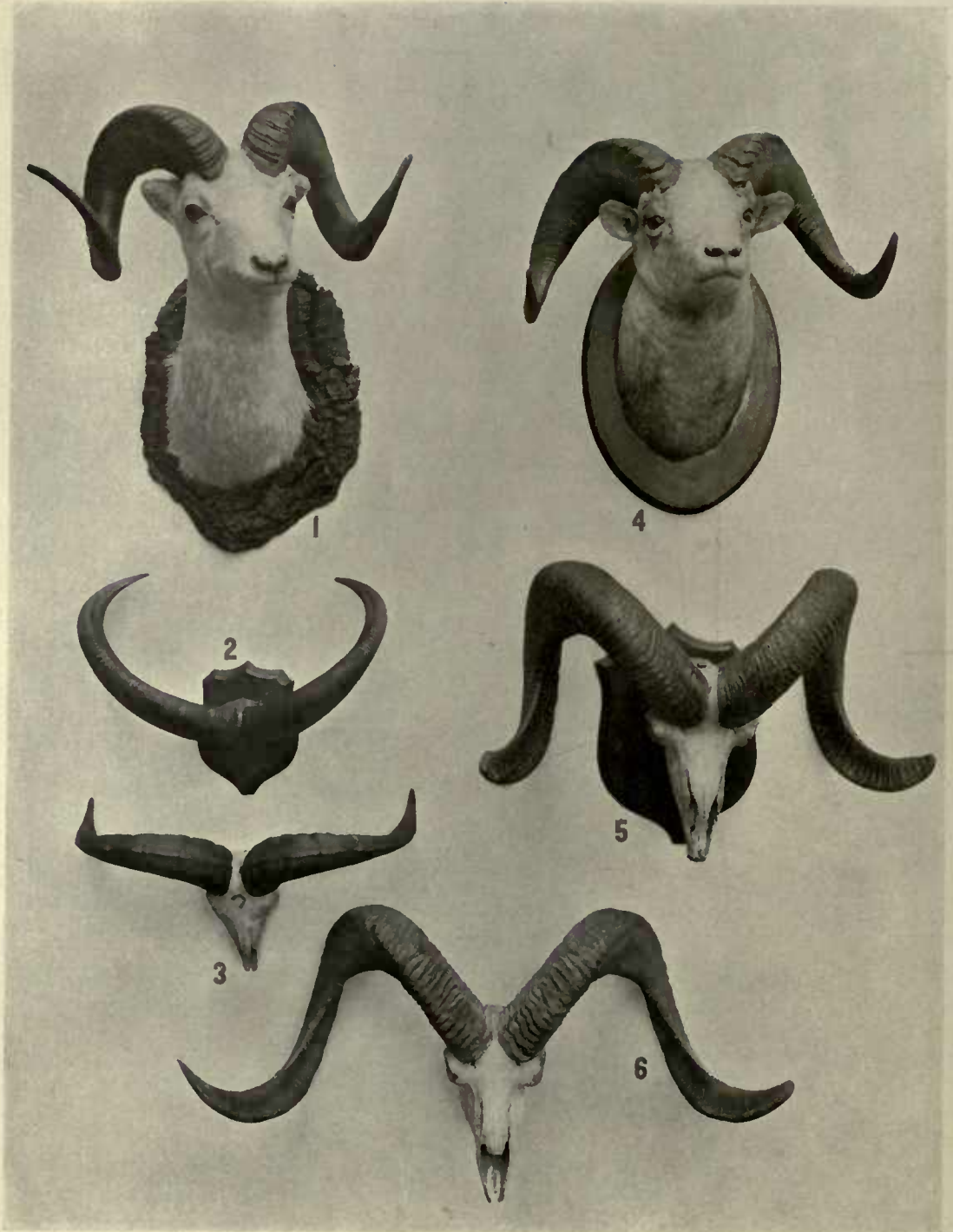
#### THE MOUNTAIN SHEEP

It is only those who make systematic collections who can realize the keen pleasure that is derived from the possession of a complete, or nearly complete, series of important zoological objects. We have observed that even the most indifferent observer of animals is aroused by the sight of a group of heads and horns which embraces fine specimens of the finest species of a given genus, and that represent localities scattered all over the habitable globe. By way of illustration, take the mountain sheep in the "nucleus collection."

As many persons are already aware, wherever it is found, a mountain sheep, no matter what its species, is an intelligent, keen-eyed, bold-hearted and nimble-footed animal, which is at home only amid the grandest mountains it can find. Its successful pursuit means great physical exertion and good marksmanship, amid the grandest aspects of nature as expressed in mountain forms. To my mind, the pursuit of mountain game is as far above the hunting to be found in forests and plains as the rifle is above the revolver; and there are no animals which so powerfully appeal to the hunter's inmost soul as do the crag-climbing wild sheep, goats, and ibexes.

Of the specimens in the "nucleus collection," the most remarkable is a colossal pair of horns from the great Siberian Argali, or *Ovis ammon* (Plate II). This animal is the largest of the world's mountain sheep, and its home and center of distribution is the Altai Mountains of western Mongolia. The fully adult male Argali stands about 48 inches in shoulder height, but for its body to be in fair proportion to its enormous horns, it should be five feet high.





MOUNTAIN SHEEP

1 White Mountain Sheep  
2 Aoudad

3 Burrhel  
4 Black Mountain Sheep

5 Littledale's Sheep  
6 Thian Shan Polo Sheep



An extra large pair of horns of this species is the grandest trophy a sheep-hunter ever can secure, not even excepting the wide-horned *Ovis poli*, of Tibet.

These horns, now fully dry and shrunken quite two inches, measure  $19\frac{1}{2}$  inches in basal circumference,  $59\frac{1}{8}$  inches in length on the curve, and the distance between the tips is 40 inches. This specimen came directly from the Altai Mountains, with the skin dried down upon the skull, and thus the entire skull was perfectly preserved. So enormous are these horns, that beside them the largest horns of our American Big-Horn seem small. In Mr. Rowland Ward's list of sixty-two of the largest heads in the world, this one stands as number four.\*

The Siar Mountains, also of central Asia, have contributed a fine pair of horns of the very rare Littledale Sheep,—*Ovis siarensis* (Plate III, Fig. 5), marked by very many narrow growth-rings, and an open spiral. Of this species only ten specimens are recorded, and for one so rare, this specimen is of very satisfactory size. So far as the records of sport are concerned, its home is almost a *terra incognita*. These horns are  $15\frac{1}{4}$  inches in circumference and 47 inches in length.

The other Asiatic sheep represented in the collection are the Kamchatkan Sheep, (*Ovis nivicola*), the Aoudad of northern Africa (Plate III, Fig. 2), the Burrhel or Blue Wild Sheep of the Himalayas of northern India (Plate III, Fig. 3), and the small, wide-horned sheep of Tibet,—*Ovis karelini* (Plate III, Fig. 6). The horns of the last-named species are like an understudy of those of the justly famed *Ovis poli*; but their spread between tips is only 45 inches.

Of the New World mountain sheep, which inhabit the western mountains of this continent from the Arctic coast as far south as the northern states of Mexico, there are about six well-defined species. The largest is the stately Big-Horn of the Rockies,—*Ovis canadensis* (Fig. 1), now very rare in every portion of the United States and Mexico, and extinct in most of its former haunts, but still lingering in the Rocky Mountains of British Columbia. This species culminates in southeastern British Columbia, and it is from that region that the largest horns have come. The nucleus collection contains a very imposing mounted head which was obtained at Banff for the writer by Mr. G. O. Shields, in 1903. After four years of shrinking the horns now measure  $16\frac{1}{2}$  inches in basal circumference, 16 inches when measured 18 inches from the

\* "Records of Big Game," fifth edition, 1906, page 402.



base, and  $6\frac{1}{4}$  inches at the tip. The length is  $40\frac{1}{2}$  inches, and the weight of the clean skull and horns, fully dry, is 38 pounds.

Next in rarity, but equaled by few sheep heads in beauty of pelage and mounting, is a good example of the little-known Black Sheep,—*Ovis stouei*



FIG. 1.—ROCKY MOUNTAIN BIG-HORN  
Obtained at Banff, B. C., by Mr. G. O. Shields

(Plate III, Fig. 4), of northern British Columbia. This handsome specimen was shot in the Schesley Mountains, forty-five miles north of the Stickine River, by Mr. J. R. Bradley, for the writer's collection, and it was mounted by Mr. John Murgatroyd. The horns measure  $14\frac{1}{2}$  inches in circumference, length 34, and spread  $23\frac{1}{2}$  inches.



Beside the last-mentioned hangs a mounted head of a White Mountain Sheep,—*Ovis dalli* (Plate III, Fig. 1), from the Kenai Peninsula, the horns of which are 37 inches in length. The western shore of Bering Sea is represented by a head of the rare Kamchatkan Mountain Sheep (*Ovis nivicola*), a species of a uniform gray color, with horns very similar to those of *Ovis dalli*.

In addition to the above, the collection contains a pair of Black Sheep horns that are unusually narrow between tips, a pair of horns of a young *Ovis poli* ram, horns of a female *Ovis fannini*, and the horns of a Big-Horn ram, with one tip broken and hanging, shot immediately after a prolonged fight with another ram, which was witnessed by the hunter. The only American forms not represented in the collection are *Ovis nelsoni*, from southern California and Lower California, and the Mexican Sheep, from Chichuahua, Mexico. In about one more year this collection would have contained a series of mountain sheep heads and horns practically complete for the world. One domestic sheep specimen has been admitted. It comes from El Paso, Texas, and each horn makes two fully complete circles. These are the only sheep horns ever seen by the author making two perfect turns.

#### THE IBEXES AND GOATS

Of ibex horns, the collection contains some excellent examples. The great Asiatic Ibex,—*Capra sibirica* (Plate IV, Fig. 1) is represented by horns from the Altai Mountains of western Mongolia, which have a length of 45½ inches. Quite equal in interest to these are a puzzling pair of large size studded on the front edge with a perfectly regular row of "bosses" of enormous size. They were said to have come from "the Caucasus Mountains," but Mr. Rowland Ward has pointed out the impossibility of that origin. In Mr. Ward's "Records of Big Game" there is nothing that resembles them, and their identity is at present involved in doubt. It seems strange that any animal with horns so very striking and characteristic should not be so well known as to be at once recognizable. In length, these horns measure only 26½ inches, but at the base each has a circumference of 11 inches. They are figured herewith, and in Plate IV appear as Fig. 3.

The Nubian Ibex,—*Capra nubiana* (Plate IV, Fig. 2), from Abyssinia, is represented by horns 38 inches long, spreading 24½ inches at the tips. These are quite slender, and the skull indicates a small animal for an ibex. The more robust Persian Wild Goat,—*Capra hircus aegagrus* (Plate IV, Fig. 4) is represented by a massive pair 39 inches long, with a basal circumference of 9½ inches.



Of goats and goat-like species represented in this collection, perhaps the most remarkable horn-producer is the Suleiman Markhor (Plate IV, Fig. 5), of Beluchistan, southern Asia. Its head is armed, and also conspicuously



FIG. 14.—WHITE MOUNTAIN GOAT  
Mounted by Mr. Homer R. Dill

ornamented, with a huge pair of horn gimlets  $27\frac{1}{4}$  inches long, set on the head like a letter V, 19 inches between tips. The spiral twist of each horn is regular and perfect, and a pronounced keel runs all the way from base to tip, making two complete turns. This creature belongs to a group of three remark-





IBEXES AND GOATS

1 Siberian Ibex  
2 Nubian Ibex

3 Siberian Ibex, (unidentified)  
4 Persian Wild Goat

5 Suleiman Markhor  
6 Takin



able wild-goat forms, called markhor ("snake-eater!"), all of which inhabit the "roof of the world" in Kashmir and Beluchistan, northwest of India.

In the group of short-horned goats (*Rupicaprinae*) is found the rare and almost unknown Takin,—*Budoreas taxicolor* (Plate IV, Fig. 6), from southeastern China, near the Assam frontier. Of this creature, as large as a donkey, but horned like a gnu, Mr. Rowland Ward has said that, "although living within sight of Indian territory, it does not appear that Takin ever have been killed by English sportsmen, and specimens are very rare in collections." Mr. Ward's "Records" note the existence of only fifteen specimens.

The White Mountain Goat (*Oreamnos montanus*), which can come from no other country than northwestern North America, is represented by a very fine mounted head. By reason of its great bulk and shaggy coat of pure white hair, this animal is so striking that it does not require, for the sake of appearances, the massive and far-reaching horns of the ibex. On the contrary, the horns of *Oreamnos* are small and inconspicuous; but, being very strongly built and as sharp as skewers, they are exceedingly useful weapons in repelling the attacks of all predatory animals except man. This specimen owes its place in the nucleus collection, not to its size, nor the length of its pelage, but to what the writer regards as the absolute perfection of its mounting. A September head, cut from the animal and placed in the flesh upon a shield would be no more perfect in form than this head (Fig. 14), which was mounted by Mr. Homer R. Dill.

#### THE ANTELOPES

In approaching the true antelopes we behold a great array of species and a marvelous variety of forms. In size they vary from the tiny Duiker, with legs no larger than a pencil, up to the gigantic Eland, an animal as large as an ox. The array of different colors, and the variety of color patterns, is fairly bewildering. The splendid Sable Antelope is jet black, the Hartebeests are brown, the Roan Antelopes are red, the Oryxes are harlequin—white and black, the White-Bearded Gnu is blue-gray, and the Beatrix is snow white. In some species the males and females are so widely and so permanently different in color that to a stranger the sexes seem of different species.

The variations in form also are very great. There is every possible range, from the snake-like Gerenuk, with a neck so amazingly long and thin as to be unbelievable until seen, to the Harnessed Antelope, with a short, heavy body



and a neck with the lines of a bison. The hoofs vary in their proportions, from the tiny, compact legs of the Gazelles to the broad, caribou-like sand-shoe of the desert-dwelling Addax.

But it is in the head weapons and ornaments of the antelopes that we find the greatest diversity. In fashioning these the ingenuity of Nature seems to have run riot. In glancing over the horns of the antelopes as a whole, it is difficult to imagine how a greater number of variations could have been produced in the one hundred and thirty-three species found within the group of antelopes. Starting soberly with the tiny spike of the Duiker, like the terminal half of a skewer, straight and smooth, straightway there begins, in the Gazelles, a wild revel of annulations, and curves, bends, twists, and spirals that soon becomes fairly bewildering. In our effort to pick out types, and classify, we note the smooth-and-twisted horns of the Harnessed Antelopes and Elands, the slender-and-ringed horns of the Gazelles, the thick and grotesquely bent horns of the Hartebeests, the long, straight, half-ringed horns of the Gemsbok, the heavily ringed and semicircular leopard-stabbers of the Sable Antelope, and the grand spirals of the Kudu, most beautiful and most imposing of all.

It is an undeniable fact—and there is no good purpose to be served either in ignoring or denying it—that in America to-day there are probably not more than five hundred persons who have had a fair opportunity to know the extent, the diversity, and inherent zoological interest of the antelopes of Africa, saying nothing of the Asiatic species. And is it not a pity that to the average American—greedy for knowledge of all beautiful or queer things, both in nature and in art—these splendid masterpieces of Nature's handiwork should be almost as obscure and unknown as the inhabitants of Mars. To-day the partnership of steam and steel have brought Africa almost to our door. Trains de luxe run to Khartum and Victoria Falls. The English are striving hard to preserve from senseless slaughter the splendid mammalian fauna that still remains in East Central Africa; and it is high time for all persons who feel an interest in the wild creatures still surviving on this gun-cursed globe to take note of the African antelopes.

Regarding the horns of antelopes to be seen in the "nucleus collection," it is unnecessary to go far into particulars. The thirty-five species which make up this series have been carefully chosen to illustrate, first of all, the different genera, and after that the most noteworthy and characteristic species. If we begin with the largest and most conspicuous species, our first specimen must represent the Eland, giant of antelopes. Its horns are massive, smooth, and



strongly twisted, but in length not quite commensurate with the commanding size of the animal. Were the Eland horned in proportion to the Sable Antelope, for example, its horns would be seven feet long! Instead of that, however, they rarely exceed 30 inches; but the Giant Eland, a species not yet seen in America, either alive or dead, is said to possess horns that are 39 inches long and 39 inches between tips. This species is of rare occurrence, and the very few specimens that have been obtained were taken in Uganda.

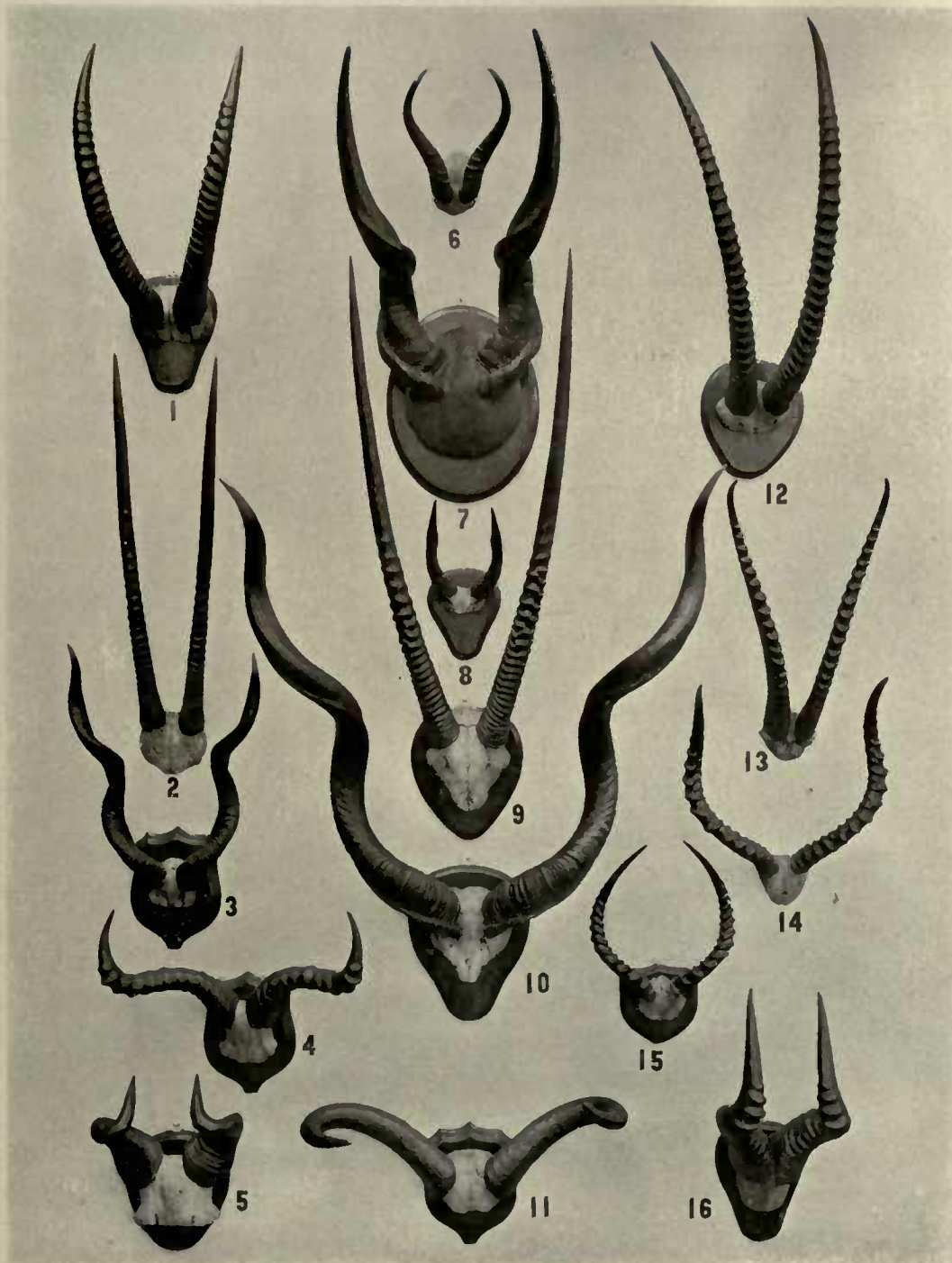
There are two species of Kudu (Plate V, Figs. 10 and 3), the Greater and Lesser. From base to tip, the horns of the first are a succession of beautiful curves. Nature surely was in sportive mood when she fashioned their huge open spirals, 50½ inches in length on the curve, 41 inches in a straight line from base to tip, and 11 inches in basal circumference. As to annulations, they are so free as to be almost smooth, and the keel of the front angle continues well defined almost to the tip. The horns of all save a very few African antelopes are black throughout. Those of the Greater Kudu are clear white at their tips, and dark brown or black for the remainder of their length. In the opinion of the writer, horns of the Greater Kudu which have open spirals and are not too far apart at the tips are the most beautiful in form of all horns.

It is a great pity that the Kudu is now so very rare that it is seen in captivity by comparatively few persons. In the zoological gardens of the world it is now almost non-existent. It is a short-bodied animal, standing very high on its legs, and its horns give it a most stately appearance.

The Lesser Kudu (Plate V, Fig. 3) is merely a small understudy of the preceding species, with horns scarcely longer or larger than those of the Black Buck, of India.

The Harnessed Antelopes and Bushbucks are small creatures with horns that in 15 inches of length humbly suggest those of the Eland. But with the antelopes of the genus *Oryx*, the case is quite different. The head of the Gemsbok,—*Oryx gazella* (Plate V, Fig. 9)—a beautiful white creature with showy black markings—is surmounted by two great, black spears of bone, of far-reaching consequence in every duel with young lion, leopard, or wild dog. Those figured herewith are 40 inches long, and practically straight from base to tip. The horns of the Beisa (Plate V, Fig. 2) and the Arabian Beatrix also are straight, but smaller. Those of the *Leucoryx* are almost as long as those of the Gemsbok (Plate V, Fig. 9), and they make a sweeping curve which gives the animal its alternate name of Sabre-Horned Antelope. The *Leucoryx* takes kindly to captivity, and the pair in the New York Zoological Park breed regularly.





AFRICAN ANTELOPE

- |                            |                      |                        |
|----------------------------|----------------------|------------------------|
| 1 Baker's Roan Antelope    | 6 Springbok          | 12 Sable Antelope      |
| 2 Beisa                    | 7 Eland              | 13 Grant's Gazelle     |
| 3 Lesser Kudu              | 8 Harnessed Antelope | 14 Pala                |
| 4 Tora Hartbeest           | 9 Gemsbok Oryx       | 15 Hunter's Antelope   |
| 5 Lichtenstein's Hartbeest | 10 Greater Kudu      | 16 Jackson's Hartbeest |
|                            | 11 Brindled Gnu      |                        |



The Sable Antelope,—*Hippotragus niger* (Plate V, Fig. 12), is perhaps the handsomest of all the African antelopes. It has high shoulders, a very erect neck, and a glossy-black body, emphasized by a few white markings. Its horns sweep back in a most graceful curve, and from the base nearly to the tip they are heavily ringed. The fine pair in this collection have the unusual length of  $41\frac{1}{2}$  inches. After these, as a sort of understudy, come the shorter horns of Baker's Roan Antelope (Plate V, Fig. 1), a species admirably represented by a living pair in the Park.

The ten-inch horns of a Springbok (Plate V, Fig. 6) recall the small antelope that is first seen by travelers in Cape Colony. Its habit of high leaping renders it especially conspicuous. This is the creature that once existed in hundreds of thousands, and had the habit of migrating en masse, as do the caribou of the Canadian Barren Grounds. Now it exists only in very small numbers.

The horns which represent Soemmerring's Gazelle are exceptionally fine, being 18 inches in length. They are beautifully formed, and their tips curve inward until they point directly toward each other.

Leaving aside the factor of size, a well-mounted head of Grant's Gazelle is an object of surpassing beauty. The upward sweep of the horns as they rise from the forehead, 24 inches or more, is an exquisite combination of grace and symmetry. It is a pity that anything less than the entire head and neck of this animal should be taken, but at present this collection contains only a pair of horns.

The Defassa Waterbuck, (*Cobus defassa*), without his heavily annulated horns would lack dignity, after the manner of the unfortunate Nilgai of India. For so large an animal, their length of  $24\frac{1}{2}$  inches (in this pair) is barely sufficient for show purposes. The Cob Antelope is a smaller species, with smaller horns, but anywhere else than in antelope-surfeited Africa, it would be regarded as a large and important species, and sought accordingly.

We approach the Duikers with diffidence. They are very small, very plain looking, their salient characters are few, and their horns are about as diversified and exciting as an assortment of toothpicks. Whenever a collector of heads and horns comes down to the Duikers, know for a verity that his interest in the African Antelopes is genuine and deeply rooted. But even then, the man does not live who can find lively entertainment in Klipspringer horns of  $3\frac{3}{4}$  inches, in Steinbock horns of  $4\frac{5}{8}$  inches, or horns of Royal Antelope (with apologies to real royalty, everywhere), only  $2\frac{1}{4}$  inches from base to tip. Kirk's



Dik-Dik is protected by tiny spikes of  $2\frac{5}{8}$  inches. The Grysbok's horns run up to  $3\frac{1}{2}$  inches, and the Black Wood Duiker and Wood Antelope each boast 4-inch horns.

Livingstone's Suni Antelope also is a tiny short-horn ( $3\frac{1}{2}$  inches), but it is so very rare it easily claims special attention. While the horns of all the other small species mentioned above are practically smooth, those of Livingstone's Suni are very heavily ringed, quite to their tips, as if they had been turned in a lathe. There are only fifteen other pairs on record, and the longest measures under 5 inches.

A pair of horns of the White-Bearded Gnu (Plate V, Fig. 11) represents a genus of African antelopes almost as odd in form as the okapi. On no other living creature can be found such a nose and such hips as those of a Gnu. Fortunately both the existing species take kindly to captivity, and a pair of each is living contentedly in the Zoological Park. Horns of the White-Tailed Gnu are more rare in collections than those of the other species, and in South Africa absurdly high prices are asked for them.

The horns of the Hartebeests (Plate V, Figs. 5 and 16) are nothing less than grotesque. They suggest broken backs and arrested development. At the base, they start out from the longest and thinnest of ungulate skulls with size sufficient to carry them four or five feet. But early in life they change their course suddenly and curve forward, spreading as they go. Very soon, however, the Hartebeest says, "No, that will not do, either!" Abruptly and resolutely they now bend sharply back again, and point out in new lines, aiming almost anywhere. Presently complete discouragement settles down like a pall, the once ambitious growth is hastily rounded up and terminated—and that is all. Regretfully we look upon the horns of a Hartebeest, of standard form, and think what it might have been but for the vaseillation and misdirection that left it an ugly, misshapen thing. The skull, however, is interesting as showing the extreme length and narrowness a ruminant skull can attain without complete segmentation.

#### THE BISON AND BUFFALOES

Most ponderous of all horned ungulates, yet in my opinion the easiest for the inexperienced sportsman to vanquish, are the Bison, Buffaloes, and Wild Cattle. Asia possesses the great Arni, or Indian Buffalo, the Gaur, the Yak, and the Gayal. Europe has the European Bison; Africa the Abyssinian Buffalo, Cape Buffalo, Senegambian, Tehad, and Congo Buffaloes, and North



America the American Bison and Musk-Ox. Considered alive, as zoological-garden specimens, they are like gold,—

“Heavy to get, and hard to hold.”

And this accounts for the great rarity of collections which contain living examples of even one-half the species named above.

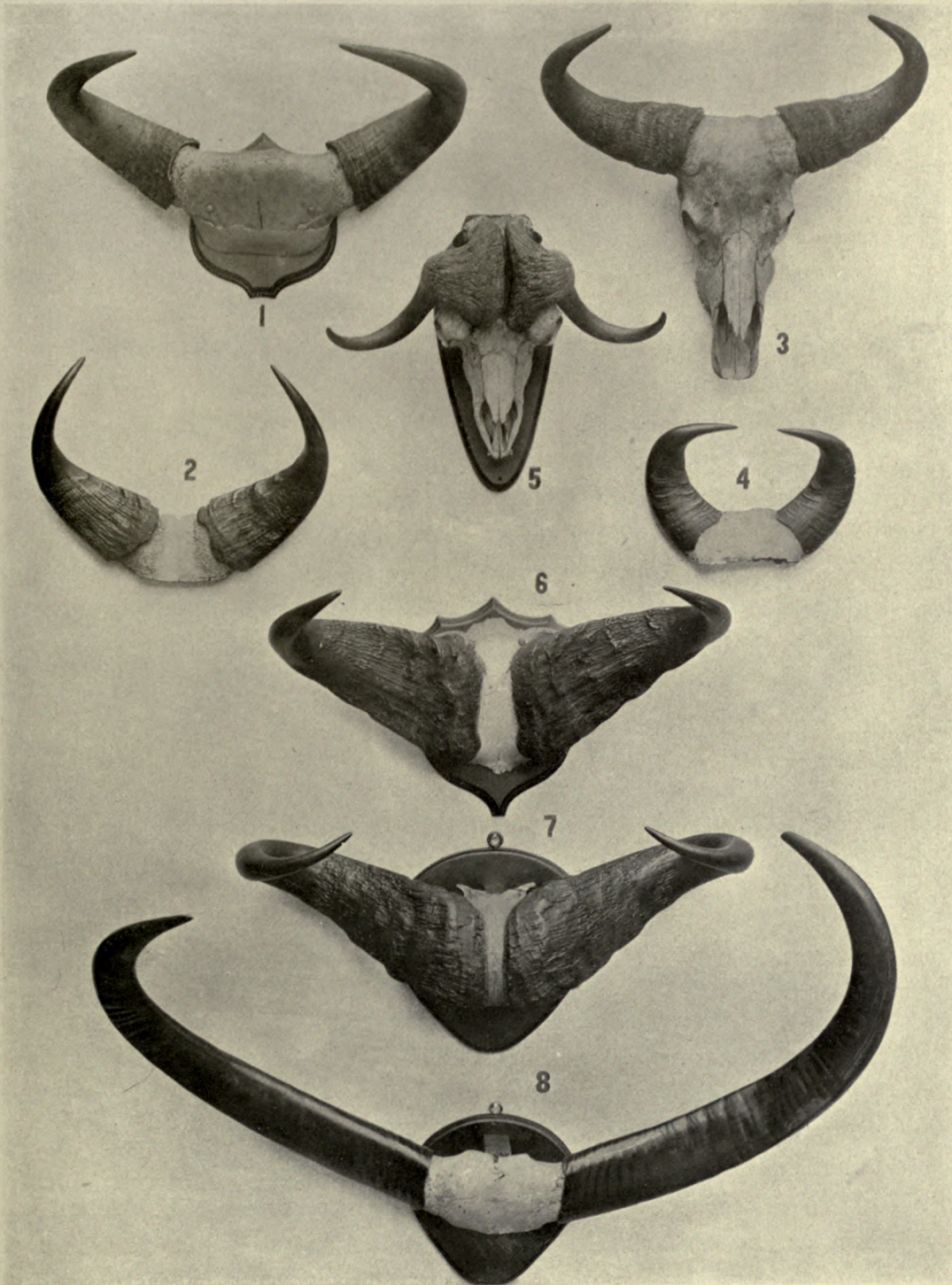


#### HORNS OF AMERICAN BISON

A series showing progress from the yearling bull to the twenty-year-old “stub-horn” bull. Collected on the Montana buffalo range in 1886, by W. T. H.

Starting with the species nearest home, the American Bison is represented in the collection now under consideration by a carefully selected series of twelve pairs of horns (Figs. 2 to 13, inclusive), representing all life periods of the male between the yearling and the aged “stub-horn bull.” All these are from wild animals, and have been in the writer’s possession for twenty-one years, awaiting such an occasion as the present. No attempt has been made to





BUFFALOES, BISON, AND MUSK-OX

- 1 Guar
- 2 Senegambian Buffalo
- 3 Cape Buffalo, female

- 4 Congo Buffalo
- 5 Musk-Ox, female

- 6 Abyssinian Buffalo
- 7 Cape Buffalo, male
- 8 Indian Buffalo



secure the largest horns, and the series is of zoological value only. We fear that it will be long ere a similar series can be brought together from wild sources.

Unfortunately, the horns of our Bison are its least imposing feature. On a head which is in good pelage, and possessed of all the hair which Nature gave it, only the terminal half of each horn is visible; and any head which makes a strong showing of horns does so at the expense of the long and shaggy frontlet—often a foot in length—which is literally the crowning glory of a Buffalo bull.

The Musk-Ox is represented by a very large skull, with horns much worn on the tips, of *Ovibos wardi*, from Franz Josef Fiord, east coast of Greenland. There is also a smaller but very perfect skull and horns from Ellesmere Land (Plate VI, Fig. 5). Neither of these specimens, however, fitly represents the species and both must as soon as possible be replaced by finer examples.

The Gaur, or Indian Bison (Plate VI, Fig. 1), is represented by a very good pair of horns  $26\frac{1}{4}$  inches in length, spreading  $31\frac{1}{2}$  inches, with a distance between tips of  $14\frac{1}{2}$  inches. It is really a pity that an animal of such grand bulk should have no pelage to speak of, and be finished off with horns which in size narrowly escape downright insignificance. In looking over a wild herd for the largest bull, it is not easy to pick out the largest pair of horns; but in thick jungle, the whiteness of a bison's horns are a great aid in making out the position of their wearer.

The wild Buffalo of India, called the Arna (Plate VI, Fig. 8), is far better equipped. His horns are shiny black, conspicuously flattened on their upper surface, and their wide spread is very striking. In the British Museum of Natural History there is a pair which seem to have a spread of at least *seven feet*! The longest horn has a length on the curve of  $77\frac{3}{8}$  inches.

Beside such a giant pair as that—the largest known—the specimen in the “nucleus collection,” with a spread of 56 inches, seems small; but there are many hanging that are smaller. It is worth while to note that the Arna is the progenitor of the race of domestic Buffaloes in use in India and farther east. The former is now rare, and is only to be obtained by diligent search. The “Indian” Buffaloes seen in captivity in this country usually are of the domestic breed. The wild animal always is black, both as to skin and horns, but its pelage is too scanty to be noticed. The domestic animal is the least beautiful of all bovine animals.

In eastern Africa there are two species of Buffaloes, which may instantly



be distinguished by their horns. The horns of the Abyssinian Buffalo,—*Bos equinoctialis* (Plate VI, Fig. 6), are strongly flattened on top, and as they leave the head they do not drop as low as those of the Cape Buffalo. In bulk, this species is big and burly, and quite like the better-known species of the South. The pair of horns in the collection spread  $33\frac{3}{4}$  inches. They are quite flat on the upper surface of the basal half, and at their widest point each horn measures  $9\frac{1}{4}$  inches across, in a straight line.

The horns of the Cape Buffalo,—*Bos caffer* (Plate VI, Figs. 3 and 7) are rounded on their upper surface, and drop lower and spread much more widely than those of the Abyssinian species. Like the horns of the musk-ox, their bases are very wide across, they grow very close together, and drop abruptly from the top of the skull. Our pair are exactly equal in length on curve and in spread—38 inches; and the width across the base is 9 inches.

Like all the true Buffaloes, both the East African species are almost destitute of hair, a fact which seriously detracts from the appearance of mounted heads. A land mammal which is hairless, or nearly so, should be covered with compensatory scales, like the pangolin.

The Senegambian (Plate VI, Fig. 2) and Congo Buffaloes (Plate VI, Fig. 4), of West Africa, are small species with horns of a totally different type from the Buffaloes of India and eastern Africa. Both these odd-looking, short-horned species are represented in the collection. Two other species once in the collection, the wild Yak and the Banting, were lost by exchange, and never recovered. Thus far good horns of the Gayal have been sought in vain, but it is hoped that the lines now out in Burma will yield them.

#### THE DEER FAMILY

Where is the big-game sportsman or mammalogist, young or old, who is not keenly interested in one or more members of the Deer Family! Hunt where you will—outside of Africa, Australia, and Polynesia—and if there remains big game of any species, you surely will find some species of deer. Even the African antelopes do not embrace as wide a range of variations as we find within the boundaries of the *Cervidae*. Consider the zoological family which includes the colossal Moose, the cold-defying Caribou, the host of round-horned deer, and the tiny hornless deer of the East Indies, no larger than a rabbit. One of the most difficult tasks in forming the animal collections of the New York Zoological Park has been to bring together in one group representatives of eight very important but little known species of Asia.



It would have been easy to have devoted my first efforts with horns of the Deer Family to North American species, especially the Moose; but I elected to give precedence to the rare and little known foreign species, especially those of Asia. The result thus far is a list of Asiatic species which may justly be surveyed with a feeling akin to satisfaction. The horn collections which contain specimens of Père David's Deer, Schomburgk's, Eld's, the Altai Wapiti, Pekin Sika Deer, the Marsh Deer, Guemal and Philippine Deer, are not numerous. In fact, I know of only one other in America which possesses all the species named above—that of Mr. Robert Gilfort, of Orange, N. J. Mr. Gilfort has collected with a keenness of zoological perception and a devotion to scientific completeness that is most praiseworthy. As a result, his collection is now very rich in species, and highly valuable.

Of the thirty-one species of the Deer Family represented in the writer's collection, it is possible to mention here only a few of the most interesting.

There are no horns of American Moose (or "Elk" of European authors), but in lieu thereof we have horns of two Old World species, the European Moose,—*Alces machlis* (Plate VII, Fig. 4), and still more important, the rare and new East Siberian Moose,—*Alces machlis bedfordiae* (Plate VII, Fig. 1). The antlers of the latter species develop *no palmation whatever*, and in size and general appearance they strongly resemble the baby antlers of a three-year-old American Moose. It seems as if *bedfordiae* is the parent stock of the European Moose, going westward, and the American Moose, trending eastward.

The most gigantic, aye, even magnificent, of all head weapons now carried by four-footed game are the antlers of the adult bull Moose of Alaska. Attaining a maximum spread of nearly seven feet (78½ inches), a weight of 92 pounds, and a shovel-width of 18 inches, they fairly "stagger the imagination." Even of all known fossil animals, the so-called Irish elk, which in reality was a species related to the fallow deer, was the only one with antlers or horns surpassing those of the Alaskan Moose. Nature was a million years or more in fashioning *Alces americanus*; and is it not saddening that despite the Alaskan game law—as strong a measure as its originators dared submit to Congress—that grand species is now being ruthlessly slaughtered to feed railway laborers and miners, and idle Indians! The Indian epicures prefer *cow* Moose, because their flesh is more tender and delicate than that of bulls. The inhabitants of Alaska seem determined that the big game of that territory shall be wiped out; and in the absence of paid game wardens and actual protection, the end seems very near. In Alaska we are now face to face with this question: Is it





MOOSE AND CARIBOU

- 1 Siberian Moose
- 2 Kenai Caribou

- 3 Greenland Caribou
- 4 European Moose



possible for the people of the United States to protect the game of Alaska against the residents of the territory who are determined to annihilate it?

In New Brunswick the Moose will survive. Thanks to efficient protection—by the residents themselves—the Moose are rapidly increasing; but the continuous killing of the adult bulls is almost certain to reduce the size of the individuals of succeeding generations.

The Moose of Scandinavia is a much smaller animal than its American congener, and its antlers also are proportionately less. The widest pair recorded in Mr. Ward's "Records" have a spread of 52 inches only, and the breadth of the "palmation" is only 9 inches. The pair in the "nucleus collection" spread 45 inches; they are  $31\frac{1}{2}$  inches in length,  $29\frac{1}{2}$  inches between tips, and the width of palmation is 9 inches. If entered in the list of eighteen for the world, they would be number seven. The greatest known width of palmation is  $15\frac{1}{4}$  inches, and there are five other specimens which exceed 10 inches. Of the record antlers of Alaskan Moose, the greatest palmation is 24 inches, while others are 23, 21, and 18 inches.

In size the Alaskan Moose is to that of Europe as the Woodland Caribou of Alaska is to the Lapland Reindeer. The Caribou of the Kenai Peninsula, and southward thereof to the Cassiar Mountains, are the giants of their genus; and of those it is safe to say that very few, if any, larger antlers ever have come out of Alaska than the huge pair in the writer's collection (Plate VII, Fig. 2). They came from the Kenai Peninsula, and in Mr. Rowland Ward's list\* of seventy of the largest *Rangifer* antlers known to him throughout the world this pair stands number two. They are distinguished by their massiveness and weight, quite as much as by their great length. The measurements in detail are as follows:

Length of right antler, on outside curve .....	58 $\frac{1}{4}$ inches
Widest outside spread .....	39 $\frac{1}{2}$ inches
Circumference above brow line .....	8 $\frac{1}{8}$ inches
Points, 24+16. Weight, fully dry, 33 pounds.	

Of the Greenland Caribou,—*Rangifer groenlandicus* (Plate VII, Fig. 3), the collection contains a specimen which for length is very good. It ranks as number sixteen in Mr. Ward's list of seventy of the largest of all species. Its extreme length is 52 inches, but like most very long antlers of Caribou, the

\* "Records of Big Game," fifth edition, 1906, page 5.



main beams are slender, measuring only  $5\frac{1}{2}$  inches in circumference above the brow line. The extreme outside spread is  $39\frac{1}{2}$  inches, and the points are 10+11.

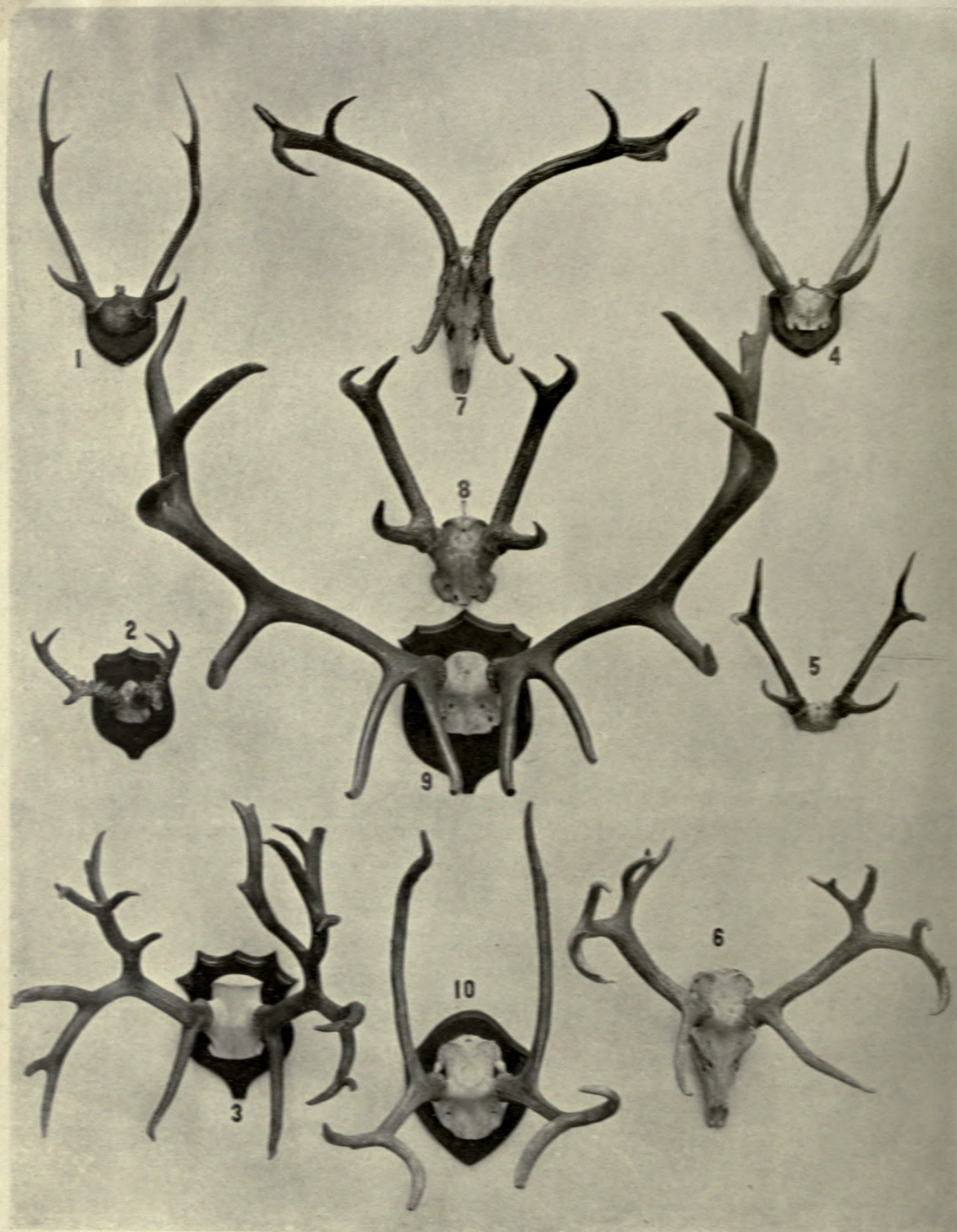
In the National Collection the round-horned deer are strongly represented. While the common and easily-accessible species have not as yet been diligently sought, and several of them are to-day absent, in the rare and little known species the collection is reasonably well provided. It is possible to mention here only those of special scientific interest, and this will be done without reference to their zoological sequence.

Of all deer antlers, the rarest and the most eagerly sought by those who collect on zoological lines are those of the well-nigh extinct Père David's Deer, formerly of China, but now of zoological gardens only. There are to-day precisely twenty-eight living specimens between *Elaphurus davidianus* (Plate VIII, Fig. 10), and total extinction. The herd of about two hundred head formerly maintained in the Imperial Park south of Peking was totally destroyed during the Boxer war. In China, not even one living specimen exists to-day; but in Japan there are three or four individuals. On three voyages Captain Thomas Golding searched diligently through the seaports of China, distributing pictures, but failed to find even one pair of antlers. Judging by one of the rare occasions wherein a pair of antlers of David's Deer have changed hands for a definite consideration, the pair now contained in the nucleus collection is worth \$400. The only other pair in America is in the collection of Mr. Robert Gilfort, where they are beyond the reach of purchase money.

David's Deer, formerly a habitant of northern Manchuria, is a queer looking animal. It is about the size of the English red deer. It has a *long tail*, and its antlers are built in reverse order. The main beam quickly bifurcates into a single tall stem which grows nearly upright, and another strong beam which thrusts out toward the front, and again bifurcates, half way out, into two long and strong tines, like a wooden pitchfork. The length of the main beam is 31 inches, and its circumference above the burr is 6 inches. Each antler has three points. In Mr. Ward's list of only eleven recorded pairs of antlers of this species, the pair now transferred to the National Collection is number three. Five of the eleven pairs are in the collection of the Duke of Bedford.

Of the horns of large and important species of round-horned deer, the next in rarity is unquestionably Schomburgk's Deer (Plate VIII, Fig. 3), of northern Siam. Mr. Ward records only seven specimens, and had nine been





ROUND-HORNED DEER

- 1 Japanese Sika Deer
- 2 Siberian Roe
- 3 Schomburgk's Deer

- 4 Hog Deer
- 5 Luzon Sambar
- 6 Barasinga Deer
- 7 Thameng

- 8 Malay Sambar
- 9 Altai Wapiti
- 10 David's Deer



received in time for entry in its proper place, it would have been number two in a total of eight. The antlers of this species (*Cervus schomburgki*) are the most numerously branched of all antlers possessed by living deer. They go far beyond the double bifurcation of the antlers of our Mule Deer, and in general effect they are decidedly tree-like. They remind one of the branches of an English oak in winter. The brow tine is long and elk-like.

The fine pair of antlers in this collection have a length on the outside curve of  $30\frac{1}{2}$  inches, with 10 points on the right and 12 on the left. Each antler branches *seven times*, and the tree-top effect is very marked. They are massive and heavy, but the shoulder height accredited to the adult animal is the same as that of our mule deer—41 inches. These antlers were obtained through the visit of a friend to Siam, bearing a special request for such a specimen.

The antlers of the Thameng, or Eld's Deer (Plate VIII, Fig. 7), of Burma, are more common. Occasionally they can be purchased in New York of Mr. Fred. Sauter; but they are so odd in form they are quite as interesting as if they were more difficult to obtain. In form, the main beam and the extremely long brow tine—taken together—describe an almost complete semicircle. The animal itself is no larger than a fallow deer, and in proportion to its size its antlers are the largest of all the deer. Four living specimens may now be seen in the Zoological Park, and very shortly there will be others.

How many persons are there in North America who could write one thousand words regarding the deer of South America as a group? Possibly twenty-five; but probably no more. And, yet, the *Cervidae* of South America are well worth knowing. Thus far two representative species, the large Marsh Deer and the small Swamp Deer, have been brought alive to New York and exhibited in the Zoological Park. Unfortunately, both those species by nature are ill-adapted to life in captivity, and they do not long survive.

A fine pair of antlers of the Marsh Deer, received from Argentina, adequately represent that interesting species. In form they are absolutely peculiar, i. e., unlike all other antlers of deer. The antlers of the Chilean Guemal are only  $4\frac{5}{8}$  inches in length.

Of the Wapiti group of round-horned deer, the collection includes three specimens which, taken together, make an important series. The first in interest is a very large pair representing the Altai Wapiti (Plate VIII, Fig. 9), of central Asia. In size, in form, and general appearance they are so perfect a counterfeit of the head weapons of our own Wapiti, or American Elk, that no observer has ever detected their identity! There are absolutely no points of



## The National Collection

difference which have as yet been discovered, save that they are somewhat smaller than the largest antlers of the *Cervus canadensis*. The Altai and the Wyoming species are seven thousand miles apart, the latter finding its farthest north on Vancouver Island, and the twin-like relationship between the two species—or whatever their exact status may be—is one of the most surprising facts connected with the genus *Cervus*. It appears absolutely certain that the ancestors of the American Elk came hither from western Mongolia, via Bering Strait. After the migration the chain parted in the middle, and the two groups drifted seven thousand miles apart. By a queer turn of fortune, the Russo-Japanese storm-cloud, when just about to burst, blew to me for this collection, from Vladivostok, a pair of antlers which represent a small intermediate species, Luehdorf's Manchurian Wapiti. Considering its position midway between the two great Wapiti of Central Asia and the United States, they are very interesting and valuable.

The measurements of the three specimens referred to above surely will interest those who are specially interested in the Wapiti group:

	Altai Wapiti*	Wyoming Wapiti	Luehdorf's Wapiti
Length on outside curve . . . . .	53	58	38½
Circumference above burr . . . . .	9	10	7⅝
Tines . . . . .	6+8	7+7	6+6

The collection contains horns varying from good to fine of the Indian Sambar, Barasinga Deer (Plate VIII, Fig. 6), Javan Rusa, Siberian Roe (Plate VIII, Fig. 2), Hog Deer (Plate VIII, Fig. 4), Luzon Sambar Deer (Plate VIII, Fig. 5), Sika of Japan, a number from Mexico and Central America, and, last and least of all branched antlers, a pair from the rare Chilian Guemal, only 3½ inches in length. A few of the above are so much below first-class size that they must be replaced by larger and more representative specimens just as soon as better specimens become available. A list of the species represented in the collection transferred to the Zoological Society is appended hereunto.

NEW YORK ZOOLOGICAL PARK,  
FEBRUARY 1, 1907.

\* No. 27, in Mr. Rowland Ward's list of 76. See "Records of Big Game," fifth edition, 1906, page 55.



## THE WORLD'S RECORD ELEPHANT TUSKS

THE recent studies by Professor Henry Fairfield Osborn of the extinct elephants, in the course of which he has brought together a collection of commanding importance, have attracted from paleontologists and others an unusual amount of attention. The magnificent skeleton of the Columbian mammoth, which now dominates the main hall of vertebrate paleontology in the American Museum, certainly is one of the most remarkable of all museum specimens of proboscideans.

Through Mr. Charles T. Barney, the Zoological Society has recently received, as a gift from him, the most remarkable pair of "living" elephant tusks of which the modern world ever has known. When the existence of this gigantic pair was first made known to us, their stated length seemed incredible; and as the tusks stand to-day in the Zoological Park, every person who sees them for the first time, and without previous knowledge, finds it difficult to believe that they have not come from an extinct mammoth of gigantic size.

Our frontispiece represents the pair of tusks of a living species of East African elephant, which arrived at the Zoological Park on February 4th, 1907, from Abyssinia, via London. The left tusk, as seen in Plate I, measures on the curve 11 feet 5½ inches; the other measures 11 feet, and the net weight of the two is 293 pounds. The longest tusk exceeds by one inch the length of the longest tusk of the great Columbian mammoth (*Elephas columbi*) in the American Museum, and it is 1 foot 1½ inches longer than the next longest tusk of an African elephant. The circumference of the largest tusk of the pair shown is 18½ inches.

Usually a very large "living" elephant tusk is very thick and rather straight. One of the finest features of this matchless pair is their symmetry and their beautiful curvature. In leaving the skull they curved outward, side-wise, then when the coast was clear, curved upward in a commanding sweep. In making the photograph which is reproduced as Plate I, the man, introduced for the sake of comparison, was 5 feet 9 inches in height to the top of his cap, and he stood actually between the rear curves of the tusks.



*The National Collection*

It is reported that these tusks recently were owned by King Menelek, Abyssinia, and that he presented them to a European political officer. Eventually, they were offered for sale in the London ivory market, and were bought by Mr. Rowland Ward, from whom they were purchased by order of Mr. Barney. They now form a part of the National Collection of Heads and Horns, and as soon as practicable will be exhibited in the Zoological Park.

So far as we know, these are the longest tusks ever produced by a living species of elephant; and the chances are, as a hundred thousand to one, that they never will be surpassed.

W. T. H.



A LIST OF HEADS, HORNS, AND TUSKS  
PRESENTED TO THE NEW YORK ZOOLOGICAL SOCIETY  
BY W. T. HORNADAY, AS THE NUCLEUS OF  
A NATIONAL COLLECTION\*

BISON, BUFFALOES, AND OTHERS

GENUS *BOS*.

- THE GAUR: INDIAN BISON.—*Bos gaurus*. [Plate VI, Fig. 1.]  
 AMERICAN BISON.—*B. americanus*. [Figs. 2 to 13 inclusive, page 22.]  
 A series of fourteen pairs of horns, from wild bison only, including two female skulls and twelve pairs of male horns of various ages from two years to twenty.  
 CAPE AFRICAN BUFFALO.—*B. caffer*. [Plate VI, Figs. 3 and 7.]  
 Male horns; skull and horns of female.  
 ABYSSINIAN BUFFALO.—*B. equinoctialis*. [Plate VI, Fig. 6.]  
 SENEGAMBIAN BUFFALO.—*B. planiceros*. [Plate VI, Fig. 2.]  
 CONGO BUFFALO.—*B. nanus*. [Plate VI, Fig. 4.]  
 INDIAN BUFFALO.—*B. bubalis*. [Plate VI, Fig. 8.]

GENUS *OVIBOS*.

- BARREN-GROUND MUSK-OX.—*Ovibos moschatus*. Skull and horns. [Plate VI, Fig. 5.]  
 WARD'S GREENLAND MUSK-OX.—*O. wardi*. Skull and horns.

MOUNTAIN SHEEP

GENUS *OVIS*.

- SIBERIAN ARGALI.—*Ovis ammon*. Male and female skulls, with horns. [Plate II.]  
 LITLED DALE'S SHEEP.—*O. siarensis*. Skull and horns. [Plate III, Fig. 5.]  
 MARCO POLO SHEEP.—*O. poli*. Ram three years old.  
 THIAN SHAN POLO SHEEP.—*O. karelini*. Skull and horns. [Plate III, Fig. 6.]  
 ROCKY MOUNTAIN BIG-HORN.—*O. canadensis*. Head.  
 ROCKY MOUNTAIN BIG-HORN.—*O. canadensis*. Fighting horns.  
 ROCKY MOUNTAIN BIG-HORN.—*O. canadensis*. Weathered horns.  
 ROCKY MOUNTAIN BIG-HORN.—*O. canadensis*. Polished horn.  
 ROCKY MOUNTAIN BIG-HORN.—*O. canadensis*. Female horns.  
 ROCKY MOUNTAIN BIG-HORN.—*O. canadensis*.  
 BLACK MOUNTAIN SHEEP.—*O. stonei*. Head. [Plate III, Fig. 4.]  
 BLACK MOUNTAIN SHEEP.—*O. stonei*. Skull and horns.  
 FANNIN'S SADDLE-BACKED SHEEP.—*O. fannini*. Female skull and horns.  
 WHITE MOUNTAIN SHEEP.—*O. dalli*. Head. [Plate III, Fig. 1.]  
 KAMCHATKAN SHEEP.—*O. nivicola*. Head.  
 AOUDAD.—*O. tragelaphus*. [Plate III, Fig. 2.]  
 BURRIEL.—*O. nahura*. [Plate III, Fig. 3.]  
 DOMESTIC SHEEP.—*O. aries*. Horns making two complete circles.

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\*The collection contains 131 specimens representing 108 species.



## WILD GOATS, IBEXES, AND OTHERS

GENUS *CAPRA*.

- PERSIAN WILD GOAT.—*Capra hircus egagrus*. [Plate IV, Fig. 4.]  
 NUBIAN IBEX.—*C. nubiana*. [Plate IV, Fig. 2.]  
 SIBERIAN IBEX.—*C. sibirica*. Skull and horns. [Plate IV, Fig. 1.]  
 SIBERIAN IBEX?—*C. sibirica* var.?—Skull and horns. (Unidentified.) [Plate IV, Fig. 3.]  
 SULEIMAN MARKHOR.—*C. jerdoni*. Skull and horns. [Plate IV, Fig. 5.]

GENUS *OREAMNOS*.

- ROCKY MOUNTAIN GOAT.—*Oreamnos montanus*. Head.

GENUS *RUPICAPRA*.

- CHAMOIS.—*Rupicapra tragus*.

GENUS *BUDORCAS*.

- TAKIN.—*Budorcas taxicolor*. [Plate IV, Fig. 6.]

## ANTELOPES

GENUS *BUBALIS*.

- TORA HARTEBEEST.—*Bubalis tora*. [Plate V, Fig. 4.]  
 SWAYNE'S HARTEBEEST.—*B. swaynei*.  
 JACKSON'S HARTEBEEST.—*B. jacksoni*. [Plate V, Fig. 16.]  
 LICHTENSTEIN'S HARTEBEEST.—*B. lichtensteini*. [Plate 5, Fig. 5.]

GENUS *DAMALISCUS*.

- HUNTER'S HARTEBEEST.—*Damaliscus hunteri*. [Plate V, Fig. 15.]  
 BONTEBOK.—*D. pygargus*.  
 BLESBOK.—*D. albifrons*.

GENUS *CONNOCHETES*.

- WHITE-BEARDED GNU.—*Connochetes taurinus*. [Plate V, Fig. 11.]

GENUS *CEPHALOPHIUS*.

- PIILENTOMBA DUIKER.—*Cephalophus maxwelli*.  
 ABYSSINIAN DUIKER.—*C. abyssinicus*.  
 YELLOW-BACKED DUIKER.—*C. sylvicultrix*.  
 BLACK WOOD DUIKER.—*C. jentinki*.

GENUS *RAPHICERUS*.

- GRYSBOK.—*Raphicerus melanotis*.  
 STEINBOK.—*R. campestris*.

GENUS *OREOTRAGUS*.

- KLIPSPRINGER.—*Oreotragus saltator*.

GENUS *NESOTRAGUS*.

- LIVINGSTONE'S SUNI.—*Nesotragus livingstonianus*.

GENUS *NEOTRAGUS*.

ROYAL ANTELOPE.—*Neotragus pygmaeus*.

GENUS *MADOQUA*.

KIRK'S DIK-DIK.—*Madoqua kirkii*.

GENUS *COBUS*.

DEFASSA WATERBUCK.—*Cobus defassa*.

BUFFON'S COB.—*C. cob*.

GENUS *CERVICAPRA*.

MOUNTAIN REEDBUCK.—*Cervicapra fulvorufula*.

GENUS *AEPYCEROS*.

PALA, or IMPALA.—*Aepyceros melampus*.

[Plate V, Fig. 14.]

GENUS *ANTIDORCAS*.

SPRINGBUCK.—*Antidorcas euchore*.

[Plate V, Fig. 6.]

GENUS *GAZELLA*.

DORCAS GAZELLE.—*Gazella dorcas*.

ARABIAN GAZELLE.—*G. arabica*.

ISABELLA GAZELLE.—*G. isabella*.

HENGLIN'S GAZELLE.—*G. tilonura*.

GRANT'S GAZELLE.—*G. granti*.

SOEMMERRING'S GAZELLE.—*G. soemmerringi*.

RED-NECKED GAZELLE.—*G. ruficollis*.

[Plate V, Fig. 13.]

GENUS *LITHOCRANIUS*.

GERENUK.—*Lithocranius walleri*.

GENUS *DORCOTRAGUS*.

BEIRA.—*Dorcotragus megalotis*.

GENUS *HIPPOTRAGUS*.

SABLE ANTELOPE.—*Hippotragus niger*.

BAKER'S ROAN ANTELOPE.—*H. equinus bakeri*.

[Plate V, Fig. 12.]

[Plate V, Fig. 1.]

GENUS *ORYX*.

GEMSBOK ORYX.—*Oryx gazella*.

BEISA.—*O. beisa*.

[Plate V, Fig. 9.]

[Plate V, Fig. 2.]

GENUS *BOSELAPHUS*.

NILGAI.—*Boselaphus tragocamelus*.

GENUS *TRAGELAPHUS*.

HARNESSED ANTELOPE.—*Tragelaphus scriptus*.

CAPE BUSHBUCK.—*T. sylvaticus*.

[Plate V, Fig. 8.]



GENUS *LIMNOTRAGUS*SPEKE'S SITATUNGA.—*Limnotragus spekii*.GENUS *STREPSICEROS*.GREATER KUDU.—*Strepsiceros capensis*.

[Plate V, Fig. 10.]

LESSER KUDU.—*S. imberbis*.

[Plate V, Fig. 3.]

GENUS *TAUROTRAGUS*.COMMON ELAND.—*Taurotragus oryx*.

[Plate VII, Fig. 1.]

GENUS *ANTILOCAPRA*.PRONG-HORNED ANTELOPE.—*Antilocapra americana*.

## CARIBOU AND MOOSE

GENUS *RANGIFER*.KENAI CARIBOU.—*Rangifer stonci*.

[Plate VII, Fig. 2.]

GREENLAND CARIBOU.—*R. groenlandicus*.

[Plate VII, Fig. 3.]

WOODLAND CARIBOU.—*R. caribou*.GENUS *ALCES*.EUROPEAN MOOSE.—*Alces machlis*.

[Plate VII, Fig. 4.]

EAST SIBERIAN MOOSE.—*A. machlis bedfordiae*.

[Plate V, Fig. 11.]

## DEER

GENUS *CERVUS*.AMERICAN ELK.—*Cervus canadensis*.ALTAI WAPITL.—*C. canadensis asiaticus*.

[Plate VIII, Fig. 9.]

LUEHDORF'S MANCHURIAN WAPITL.—*C. luehdorfi*.PEKIN SIKI.—*C. hortulorum*.JAPANESE SIKI.—*C. sika typicus*.

[Plate VIII, Fig. 1.]

INDIAN SAMBAR.—*C. unicolor*.MALAY SAMBAR.—*C. equinus*.

[Plate VIII, Fig. 8.]

LUZON SAMBAR.—*C. philippinus*.

[Plate VIII, Fig. 5.]

JAVAN SAMBAR.—*C. hippelaphus typicus*.HOG DEER.—*C. porcinus*.

[Plate VIII, Fig. 4.]

BARASINGA DEER.—*C. duvauceli*.

[Plate VIII, Fig. 6.]

SCHOMBURGK'S DEER.—*C. schomburgki*.

[Plate VIII, Fig. 3.]

THAMENG.—*C. eldi*.

[Plate VIII, Fig. 7.]

GENUS *BLASTOCEROS*.MARSH DEER.—*Blastoceros paludosus*.GENUS *HIPPOCAMELUS*.CHILIAN GUEMAL.—*Hippocamelus bisulcus*.GENUS *CERVULUS*.INDIAN MUNTJAC.—*Cervulus muntjac*.

GENUS *CAPREOLUS*.

EUROPEAN ROE.—*Capreolus caprea*.

SIBERIAN ROE.—*C. pygargus*.

[Plate VIII, Fig. 2.]

GENUS *ELAPHURUS*.

DAVID'S DEER.—*Elaphurus davidianus*.

[Plate VIII, Fig. 10.]

GENUS *ODOCOILEUS*.

NORTHERN WHITE-TAILED DEER.—*Odocoileus virginianus* (Minnesota).

NORTHERN WHITE-TAILED DEER.—*O. virginianus* (Texas).

SINALOA WHITE-TAILED DEER.—*O. sinaloae* (Guadalajara).

YUCATAN WHITE-TAILED DEER.—*O. toltecus*.

COUES' WHITE-TAILED DEER.—*O. couesi*. (Head; from Sonora, Mexico.)

TRUE'S WHITE-TAILED DEER.—*O. truei*. (Honduras.)

MULE DEER.—*O. hemionus*. (Arizona.)

SITKA DEER.—*O. columbianus sitkensis*. Head and pair of antlers. (Ft. Simpson, B. C.)

GENUS *MAZAMA*.

TUNKAS BROCKET.—*Mazama pandora*. (Pueblo, Mexico.)

MISCELLANEOUS

GENUS *RHINOCEROS*.

AFRICAN TWO-HORNED RHINOCEROS.—*Rhinoceros bicornis*.

Horn, 19½ inches. (Rhodesia.)

GENUS *ELEPHAS*.

SIBERIAN MAMMOTH.—*Elephas primigenius*.

Tusk, length, 7 feet 10 inches. (Unalaklik, Alaska.)

GENUS *PHACOCOAERUS*.

WART-HOG.—*Phacochoerus africanus*. Tusks, 14 inches.

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THE  
NATIONAL COLLECTION  
OF  
HEADS AND HORNS

---

PART II

---

By W. T. HORNADAY, Sc. D.



NEW YORK ZOOLOGICAL PARK  
NEW YORK  
SEPTEMBER 1, 1908













PLATE IX.—GIANT MOOSE ANTLERS, REED-McMILLIN COLLECTION



THE  
NATIONAL COLLECTION  
OF  
HEADS AND HORNS

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PART II

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NEW YORK ZOOLOGICAL PARK  
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SEPTEMBER 1, 1908



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## PREFACE

THE National Collection of Heads and Horns represents an effort to build up a collection that will adequately represent the big game of the world in general, and that of America in particular. Such an undertaking is now rendered necessary by the rapid disappearance of large mammalian life, all the world over. In 1906 a definite plan was formulated by Madison Grant and William T. Hornaday, and laid before the New York Zoological Society, proposing that a great collection be formed, that it be national in scope and importance, that it be formed by sportsmen, and that it be owned and maintained perpetually by the Society, in the New York Zoological Park.

This proposal was at once accepted by the Zoological Society, and as a nucleus Mr. Hornaday presented his private collection, as described in Part I of this publication. Until a special building is erected for it, the Society will devote to the heads-and-horns collection the two picture galleries of the new Administration Building which is now under construction. These galleries will very well suffice for two or three years, but in the near future a spacious fire-proof building will be necessary.

As already intimated, the object of this collection is to afford to the sportsman, naturalist, and every other person interested in animals, a comprehensive and satisfactory view of the big game of the world, with a wealth of detailed information and illustration. The first effort will be to bring together materials for two complete series of heads and horns, one zoological, the other geographical. In addition to these, it is desirable to form collections of horns and antlers of specially important species, such as the moose, wapiti, mountain sheep and caribou, to show their status in widely separated localities, and under varying conditions of food and climate. For example: we now have moose heads from the Kenai Peninsula, the Atlin District of British Columbia and from Green River, Wyoming, the farthest south of the species. We must have, also, specimens representing New Brunswick, Nova Scotia, the Ottawa Country, northern Minnesota and the farthest north of the moose. Such special collections surely will be of real value to everyone who is interested in the species thus represented; and they will form an important feature of the National Collection as a whole.

While it is quite essential that every specimen accepted for the National Collection shall serve some specific purpose, and serve it well, it is not to be expected that each object shown shall be of an extraordinary character. Of the rare species we must accept small specimens and make much of them until large ones are offered. The tape measure is not to be the sole arbiter, but of common species it is necessary that a high standard should be maintained.

Although this collection will be located in America, we hope that all sportsmen and naturalists from abroad will enjoy it with us. The brotherhood to true sportsmanship is universal. While we do not seek to impose upon foreign sportsmen any burdens in connection with this undertaking, we do not hesitate to say that world-wide cooperation in the upbuilding of a world-wide collection will be welcomed as cordially as we would welcome any brother-sportsman to a seat at our camp-fire in a land of big game.

W. T. HORNADAY,  
MADISON GRANT,  
Committee in Charge of the Collection.

## THE YEAR'S RECORD

THE record of the first year of the National Collection of Heads and Horns is profoundly gratifying. It shows, beyond the possibility of doubt, that the idea meets the hearty approval of American sportsmen, and that they will work it out to a splendid consummation. With rare and valuable gifts in hand at this moment which have come to us from Victoria, British Columbia (Warburton Pike); from Santa Barbara, California (George H. Gould); from London, (William Jamrach); from Chungking, China, 1200 miles up the Yangtse Kiang (Mason Mitchell) and a fine collection from Philadelphia (George L. Harrison, Jr.),—saying nothing here of the gifts from New York City,—we may fairly claim that the ultimate success of the National Collection is assured.

It is indeed a great pleasure to report upon the gifts of a year which has been so fruitful as that which has elapsed since May 1, 1907. They are so numerous and so fine that it is impossible to do them justice within the limits of a single number of this publication. The matchless Reed-McMillin collection deserves more space than it is possible to bestow upon all the gifts of the entire year, and nothing less than a double number should be offered for what must be set forth in Part II of this publication.

A glance at the gifts of the year, as they hang crowded together in what we call Store Room No. 3 at the Lion House, is most interesting. The wall space that is thickly covered with heads and horns, omitting the great bear skins, which for the moment lie upon the floor, would if stretched out be 72 feet long by 12 feet high. The plastered walls have been solidly covered with planking, and that in turn has been covered by olive-green burlap, such as is used in picture galleries. This storeroom—which is in a building absolutely fire-proof—is now so full that another room has been fitted up for a similar purpose, in the basement of the large Bird House.

Inasmuch as the construction of the Administration Building will begin Sept. 1, and be finished in 1909, the Collection will ere long be suitably displayed. Pending the erection of a special building for its sole use, it will be installed in the picture gallery of the new building, where it will be accessible to all sportsmen, naturalists, and their friends.



It is now quite in order for gifts as yet unmade to be hastened somewhat, in order that when the new building is "inaugurated" the National Collection of Heads and Horns will constitute its chief feature of interest. With this number of our annual publication, a circular letter will be sent to all the sportsmen of North America, whose names and addresses are on our list, and to it their careful attention is earnestly invited.

There is a point on which the Committee in charge of the formation of the National Collection bespeaks special consideration from all those making gifts. While we very much desire to secure specimens that are extra large and fine, and as many as possible that are "records," many others are desirable because of their rarity, and possibly for other reasons equally good. We must have, as early as possible, a complete collection *as to species*, arranged geographically, for all the world, and *another* equally complete, arranged in zoological sequence. Naturally the consummation of these two grand objects will lead occasionally to the acceptance of a rare head that is really *small* for its kind, with a view to replacing it in after years by another which will more fitly represent the species. In view of this condition, which really must be met, we ask all contributors to give the Committee a reasonable amount of discretion in the placing of their gifts in the two grand series which some day will render this collection famous. Many specimens will be useful besides those that make up the two series, for there will naturally be developed a number of special exhibits, to serve special purposes, some of them of very decided importance. For example, of a species that varies as greatly as does the White-Tailed Deer, it will be well to illustrate those variations by a special collection of at least a score of specimens, covering various localities.

Practically all the measurements recorded for the gifts received between April 1, 1907, and July 1, 1908, were made by Ferdinand Kaegobehn, Librarian of the New York Zoological Park. There is every reason for the belief that they are conservative and correct. All dimensions are given in feet and inches.

## THE REED-McMILLIN COLLECTION

**B**Y far the most important accession of the year 1907 was the splendid collection of heads, horns and skins of Alaskan big game (Plates X and XI) made by Mr. A. S. Reed, of England, and purchased and presented by Mr. Emerson McMillin, of New York.

Ten years ago, the moose, caribou, big brown bears and other game animals of the Alaskan littoral were much more numerous than they are now,—or ever will be again. The hunters of even less than ten years ago were able to take their pick of the huge individuals who had fed fat and grown colossal in size, without the dangers and casualties of to-day. In 1900, heads were obtainable by persistent sportsmen which now are very hard to secure in the wilds. The period of real moose and caribou slaughter set in about 1900, and since that date very few sportsmen have collected moose-heads of 70 inches or above.

From 1896 to 1902 A. S. Reed, an Englishman, lived at Victoria, B. C., and made frequent hunting expeditions to Alaska and northern British Columbia. It was his practice to hunt the large horned game very late in the fall or in the early winter, and to seek bears at the earliest possible period in the spring. The choicest of all the heads and skins taken on these half-dozen expeditions were carefully preserved, and afterward mounted in Victoria. Mr. Reed's work was done by Fred. Foster, who certainly is one of the best taxidermists of the whole Pacific coast, and it has been so well executed that we are able to regard it with genuine satisfaction.

In the most sportsmanlike manner, Mr. Reed finally accumulated a large collection of exceedingly valuable specimens, all in a fine state of preservation.



EMERSON McMILLIN





THE REED-McMILLIN COLLECTION. PART I





THE REED-McMILLIN COLLECTION. PART II



The collection was temporarily deposited in the club house of the Union Club, Victoria, and for several years was displayed upon its walls. To all sportsmen and naturalists who visited Victoria, the "Reed Collection" was shown as one of the notable sights of the city.

Finally, in 1905, Mr. Reed left Victoria, and again took up his residence in England; and the final disposal of his collection became a serious question. It became apparent that because of the impossibility of keeping it with him, or even near him, it would be best to sell it, provided a satisfactory purchaser should appear. The price first fixed for it was \$10,000.00. Later on that was reduced to \$6,000.00, and at that figure the collection very narrowly escaped being fatally sold in 1905.

For several years the "Reed Collection," in Victoria, was longingly regarded by many persons on this side of America. It was offered to two or three museums, but fortunately none of them manifested any practical interest in its purchase. By a strange combination of circumstances, all tending in the same direction, it was reserved for the National Collection; and furthermore, the National Collection was founded barely in the nick of time to secure it!

In the spring of 1907, immediately following the issue of Part I of this publication, Mr. Madison Grant and the writer resolved to put forth as much effort as might be found necessary to secure by popular subscription a fund sufficient to purchase the "Reed Collection." Mr. Reed was at once located and addressed, and an option was asked for, at \$5,000.00 for the lot, *leaving out the bear skins*. Mr. Reed replied that he would not like to divide the collection in any way, and in view of the important object for which the collection was desired, we might have *the whole of it* for \$5,000.00! It is unnecessary to remark, after this statement, that Mr. Reed is unquestionably a true sportsman.

At this juncture, Mr. Emerson McMillin, of New York,—banker, art connoisseur, big-game hunter and member of the Camp-Fire Club of America, intimated to the writer his desire to do something for the National Collection. When the proposal regarding the purchase of the "Reed Collection" was fully placed before him, without an instant's hesitation he said, "You buy the collection, have it brought on to New York, and I will pay both cost and carriage."

It is not only right and just, but also necessary, in accordance with the eternal fitness of things, that henceforth this matchless collection and gift shall be known to the world as the REED-McMILLIN COLLECTION.



FIG. 15.—ALASKAN MOOSE HEAD  
In the Reed-McMillin Collection

The purchase of the Reed Collection was closed with Mr. Reed on September 6, 1907, and the price paid was \$5,000.00. The specimens were turned over to Fred. Foster, taxidermist, of Victoria, on September 13, 1907. Mr. Foster renovated everything, packed the collection in six huge cases, and shipped it from Victoria on September 20, 1907. Hon. Abraham Smith, American Consul at Victoria, representing the purchasers, inspected and approved the collection, and it was on his approval that the purchase price was paid. Mr. Foster rendered the National Collection most excellent service in the thorough and expeditious manner in which all his work was performed.

The collection arrived at the Lion House in the Zoological Park on October 16, 1907, and by the courtesy of the General Appraiser of the Port of New York, the cases were not opened for examination until they reached the Park. The total cost of renovating, packing and shipping the collection was a trifle under \$500.00, all of which was paid by Mr. McMillin.



As a special favor to the Forest, Fish and Game Society of America, a large portion of this collection was loaned for exhibition at its first Sportsman's Show, held in the Grand Central Palace; but because of the dangers of fire, and the impossibility of ever replacing these specimens, if once destroyed, they never again will be sent away from the Zoological Park for exhibition, or for any other purpose.

*The Moose Heads.*—Of all the big animals of Alaska—"big" bear, "big" caribou and others, the "Giant" Moose, (*Alces americanus gigas*) appeals most strongly to the imagination of everybody in general, and to the sportsman in particular. It is truly the colossus of the North; and if the people of the United States ever permit it to be even practically exterminated, they will merit the scorn of all coming generations. Professor Osborn has said that "Nature has been a *million years* in developing that wonderful animal; and man should not ruthlessly destroy it!"

The sight of one fine head of an Alaskan Moose should be enough to induce any good American citizen to support heartily the principle of game protection in our arctic province.

Thus far the largest Moose and the largest of all Moose antlers have come from the Kenai Peninsula. It was there that Mr. Reed hunted Moose in September and October, 1900, and shot the six specimens whose heads now form the most imposing feature of his collection. One only (Figure 15) has been mounted; and although the skins of the other five heads are present, in a fine state of preservation, it seems to be the universal opinion of the animal painters and sculptors, and horn experts, also, that the antlers look far more imposing as they are, unmounted. We have been strongly advised by Mr. Carl Runge and others, never to permit the grand-prize 76-inch antlers to be mounted.

It is well, however, to have one mounted head of an Alaskan Moose, in order that the enormous bulk of the living animal may be appreciated.

The largest pair of Moose antlers (Plate IX) in this collection is, in the opinion of the writer, the finest pair in the world. Its palmation is far wider, and it has more points, than the antlers in the Field Museum, at Chicago, which in spread surpass this pair by  $2\frac{1}{2}$  inches. When killed, this head had a spread of 76 inches, but in eight years of drying it has shrunk to 75 inches. All Moose antlers lose width in about that proportion. Up to this time, Moose antlers have been ranked by their spread alone; but I think that is a mistake. In my opinion, *area of palmation* should be regarded as the leading feature, for it is that which is most impressive in Moose antlers,—far more so than wide

spread and narrow "shovel." I have seen several antlers with great spread that were not so fine or desirable as others of less spread but better palmation.

The measurements of Mr. Reed's six Moose heads are to-day as shown below; but it must be remembered that the measurements of fresh heads are not to be compared with those taken from heads that are thoroughly dry.

## MOOSE HEADS

CATA- LOGUE NUM- BER	INNER EDGE		GREAT- EST SPREAD	LENGTH ON OUTSIDE CURVE		GREATEST WIDTH OF PALMATION		CIRCUMFER- ENCE OF BEAM ABOVE BURR		NUMBER OF POINTS	
	Right	Left		Right	Left	Right	Left	Right	Left	Right	Left
117	41	40	75	41½	40¾	18	21⅝	9	10¼	19	23
118	43¼	43	71¼	48	48	17¼	16½	9¼	9½	18	16
119	45	44¼	64½	47	46½	16¾	15½	9¾	9⅞	12	15
120	44	46¼	61¾	47	48	18¼	21⅜	9	9	13	16
121	37⅞	37	68	41	43½	12	13⅞	8¾	8⅞	19	19
122	38½	38½	63⅓	42¾	42	13¾	13½	9½	9¼	17	19

*The Caribou Heads.*—The six mounted heads of Caribou collected by Mr. Reed represent two species, and also two groups. Fortunately the finest head in the series is also the rarest. It was killed in the Cassiar Mountains, of northern British Columbia, in 1896, and represents the Osborn Caribou,—*Rangifer osborni* (Figure 17). In size, in massiveness, length of tines and general *ensemble*, this is certainly one of the finest Caribou heads in existence. A cut of it appears in an elaborate illustrated paper on "The Caribou," by Madison Grant, published in the Annual Report of the New York Zoological Society for 1902. This species, named in honor of Prof. Henry Fairfield Osborn, is one of the largest, and weighs from 550 to 700 pounds. Mr. Grant states that "*R. osborni* are found living throughout the year in the high mountains above timber-line, and are the largest and handsomest Caribou known." It is indeed good fortune to have secured the famous head that is figured herewith.

The other Caribou heads, five in number, were taken on the western side of the Alaskan Peninsula, in September and October, 1901. They are *Rangifer granti*, and represent a species described in 1902, and named in honor of Madison Grant, through whose efforts the type specimens were collected.

This species belongs to the Barren Ground group of Caribou, and is a much smaller animal than the robust Kenai, Osborn and Mountain species, which are woodlanders. The antlers are longer in the beam, have fewer points,



and are also of distinctly lighter build. Formerly Grant Caribou were abundant on the Alaska Peninsula, but so many have been butchered to make an arctic holiday that few remain. Thanks to the Alaska game laws, the Secretary of Agriculture has absolutely prohibited the killing of both Grant Caribou and the Kenai species, on their respective peninsulas. The following table gives the dimensions of the six Caribou heads in this collection:

CARIBOU HEADS

SPECIES	CATA- LOGUE NUM- BER	LENGTH ON OUTER CURVE		GREATEST OUTSIDE SPREAD	CIRCUMFERENCE OF BEAM ABOVE BROWTINE		POINTS	
		Right	Left		Right	Left	Right	Left
<i>Rangifer osborni</i>	123	55 $\frac{3}{4}$	56	44	8	8	26	18
<i>Rangifer granti</i>	124	57	59 $\frac{3}{4}$	49	7 $\frac{1}{4}$	9	11	18
" "	125	58 $\frac{1}{8}$	62	50	7 $\frac{3}{8}$	8 $\frac{3}{8}$	9	15
" "	126	50 $\frac{1}{2}$	52 $\frac{7}{8}$	42 $\frac{1}{2}$	8 $\frac{1}{2}$	7 $\frac{3}{8}$	13	12
" "	127	54	60	43 $\frac{1}{2}$	7 $\frac{1}{4}$	7 $\frac{1}{8}$	20	14
" "	128	54	55 $\frac{1}{4}$	50 $\frac{1}{2}$	7 $\frac{3}{4}$	7 $\frac{1}{4}$	18	14

*White Mountain Sheep*.—On the Kenai Peninsula, in November and December, 1900, Mr. Reed collected the ten sheep heads now in the collection. The species which inhabit that locality has been described (by J. A. Allen) as a sub-species of the original form, the type of which was collected by E. W. Nelson, in 1884, in the Tanana country.

The Kenai form has been christened *Ovis dalli kenaiensis*, and it is believed by some authorities that its horns "nearly always" are developed in a closer spiral than the horns of White Sheep from the main range of the Rockies. Be that as it may, we have here a splendid series of heads from the Kenai country, and when some one else places us in possession of an equally good series from other portions of the home of the White Sheep, we can have an opportunity to judge for ourselves regarding the horn architecture of the two forms.

A great many of the White Sheep now in the halls of sportsmen, and in museums generally, have been collected either in the summer or early autumn, when the new pelage was short and scanty, and sometimes stained with earth. Summer-killed specimens do not fully represent any ruminant species of the temperate or arctic zones, but often in remote localities they are the only ones obtainable by the long-distance sportsman.



FIG. 17.—OSBORN CARIBOU HEAD

In the winter-killed sheep specimens of Mr. Reed, the pelage is of maximum length. Indeed, on the three mounted heads it is so long as to almost mask the form and proportions of the head and face. Often in the mounting of heads clothed with full-length pelage, the skill of the taxidermist is taxed to the utmost to turn out a finished head that will not look commonplace, or even shapeless, by reason of its great mask of long hair.

Inasmuch as the killing of White Sheep on the Kenai Peninsula is now absolutely prohibited, we may congratulate ourselves upon having secured this



surpassingly fine series of mounted heads, skulls and head-skins to match. The horn measurements of the five largest specimens are as follows:

## WHITE SHEEP HEADS

CATA- LOGUE NUM- BER	CIRCUMFERENCE AT BASE		LENGTH ON OUTER CURVE		WIDEST OUTSIDE SPREAD	DISTANCE BETWEEN TIPS
	Right	Left	Right	Left		
137	13	13	37 $\frac{3}{4}$	38 $\frac{3}{8}$	20 $\frac{1}{8}$	19 $\frac{7}{8}$
138	12 $\frac{5}{8}$	13	36 $\frac{5}{8}$	36 $\frac{5}{8}$	20 $\frac{5}{8}$	20 $\frac{1}{8}$
134	12 $\frac{3}{4}$	12 $\frac{7}{16}$	34 $\frac{1}{2}$	34 $\frac{1}{4}$	23 $\frac{7}{8}$	23 $\frac{5}{8}$
136	12 $\frac{5}{8}$	12 $\frac{3}{8}$	34 $\frac{3}{4}$	36	21	20 $\frac{5}{8}$
135	12 $\frac{1}{2}$	12 $\frac{3}{8}$	33 $\frac{1}{2}$	35 $\frac{1}{8}$	20 $\frac{1}{8}$	19 $\frac{1}{16}$

## THE BEAR SKINS AND HEADS

*Skins.*—It is here that the writer hesitates, and would gladly be excused; for the gloom surrounding the classification and individual identity of the bears of Alaska is at times impenetrable. For example, who can name the species to which these bears belong (except the Black Bear) without dismounting the heads, and taking out the skulls to examine them?

The largest bear skin is a sad blow to the supremacy of the Kadiak Island Bear, (*Ursus middendorffi*), whose title to fame has rested chiefly upon his superior size. Here is a skin taken on the western side of the Alaska Peninsula, in April, 1901, which once was worn by nothing less than an ursine monster. It does not look stretched beyond its proper limits, and I think it is about as Nature made it; which, by the way, is a rare thing in *big* skins of Alaskan Brown Bears. Usually they are stretched to the limit of possibility, and sometimes extra length is obtained at a loss of width which ruins the true proportions.

The huge skin shown in the accompanying plate (Figure 16) measures 9 ft. 4 in. in length from end of nose to tip of tail; 8 ft. 2 in. across front paws, to base of middle claws; and 6 ft. 5 in. in width at the middle of the body, as trimmed and made into a rug. The head measurements are given in the table below, its catalogue number being 145.

This skin is precisely similar in color to that of the Kadiak Bear, but its head seems to be shorter, especially in the muzzle. It will be remembered that the Kadiak species is marked by an extremely long muzzle, (*i. e.* the nose, from





ALASKAN BEAR HEADS

In the Reed-McMillin Collection

- 1 Alaskan Brown Bear  
2 Alaskan Brown Bear

- 3 Alaskan Brown Bear  
4 Alaskan Brown Bear

- 5 Alaskan Brown Bear  
6 Alaskan Black Bear

Skull of an Alaskan Brown Bear





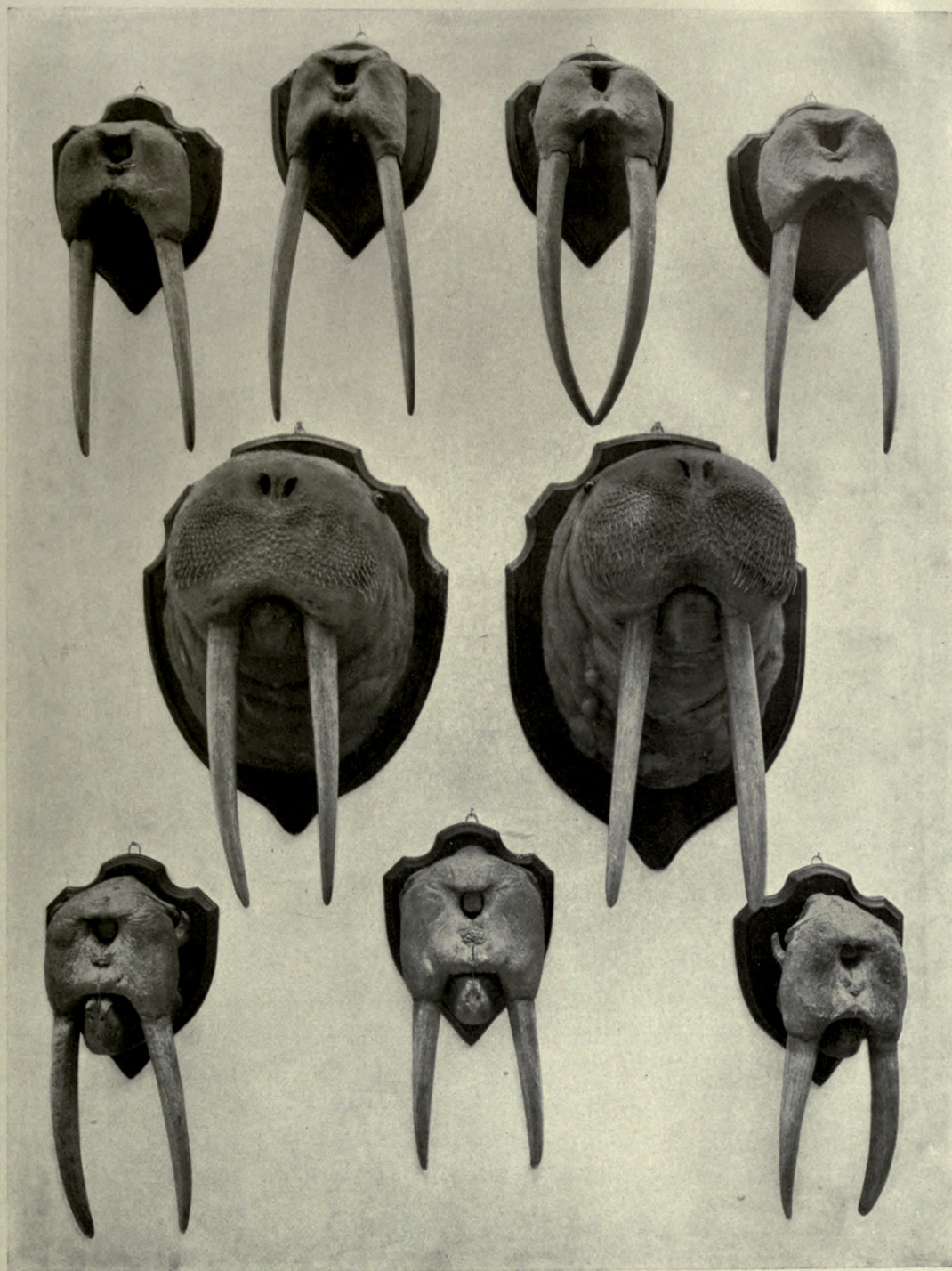
FIG. 16.—THE GREAT ALASKAN BROWN BEAR SKIN  
In the Reed-McMillin Collection

the eyes, forward). Three forms of Alaskan Brown Bears have been described from the Alaska Peninsula; *Ursus merriami*, by Allen, *Ursus dalli gyas* and *kidderi*, by Merriam. This giant skin,—which surely is one of the very finest bear skins in existence,—may represent any one of those forms, or neither of them; and the observer of it is left to take his choice of names.

There are two other bear skins, smaller, of lighter and more varied colors than the giant, and it is reasonably safe to believe that they represent immature specimens of the same species.

*Heads.* (Plate XII.)—Of mounted heads there are six. Five are of Alaskan Brown Bears, of various ages and sizes, and one is of a large Black Bear. All were killed on the western slope of the Alaska Peninsula in April and May, 1901. Three of the “big Brown Bear” heads are very large, and each has its own peculiarities. All are in fine pelage, but having been killed





PACIFIC WALRUS HEADS AND TUSKS

In the Reed-McMillin Collection



in the spring, it is almost certain that their colors are lighter than they were in the late fall and early winter. This seasonal color change is one of the few constant conditions that have marked the four Alaskan Brown Bears (from three localities) now living in the New York Zoological Park.

The measurements of the four large mounted heads of big Brown Bears, and the mounted head on the large skin, are as follows:

## BEAR HEADS

CATALOGUE NUMBER	EAR TO END OF NOSE DIRECT LINE	GREATEST BREADTH AT JAWS ACROSS UPPER CANINES	INNER CIRCUM- FERENCE OF EYE TO END OF NOSE	BETWEEN EARS AT BASE	CIRCUMFERENCE AROUND JAWS
145	19¼	4¼	7⅝	16¼	26½ Open
139	19⅞	4	8	14⅞	25½ "
140	17½	3½	7⅜	13¾	23 "
141	17⅝	3½	7¾	15½	18⅜ Closed
142	14½	3	7	12	19 Open

*The Walrus Heads and Tusks.* (Plate XIII).—The Reed-McMillin collection contains two mounted heads of Pacific Walrus, (*Odobacenus obesus*) and seven pairs of Walrus tusks. The heads themselves are very large, and excellently mounted, but none of the tusks are of unusual size. Their owners were killed by Mr. Reed, on the west coast of the Alaska Peninsula, in November, 1901.

The Pacific Walrus is a far larger animal than its Atlantic relative, and its form is much more remarkable. Its most astonishing feature is the great height and enormous neck of the adult male, which really is almost incredible until seen. A specimen measured by Henry W. Elliot on Walrus Island, Bering Sea, measured 12 ft. 7 in. in length, not including the hind flippers, and its girth was 14 feet! Naturally, the mounted head of such a marine monster as this is a remarkable object, and rarely come by, even in a natural history museum. An adult bull Pacific Walrus which could be induced to live in a show for one season would be a greater wonder than forty elephants. Unfortunately, however, such an animal never has been kept in captivity, and probably never will be. The dimensions of the two large mounted heads in the collection are as follows:

	No. 149,	No. 150,
Greatest width .....	15 inches;	15 inches.
Circumference of muzzle.....	45¾	46½
Width of muzzle.....	15½	14½
Circumference, at back of head.....	59½	52½

## A GROUP OF GIFTS FROM THREE CONTINENTS

EARLY in 1907, and immediately following the first announcement of the founding of the National Collection by the acceptance of the "nucleus," Mr. John Roger Bradley offered three trophy heads from his African hunting trip. One was a Coke Hartebeest,—*Bubalis cokei* (Plate XIV, Fig. 2), another an Impala Antelope,—*Aepyceros melampus* (Plate XIV, Fig. 1), and the third and finest was a Common Waterbuck,—*Cobus ellipsiprymnus* (Plate XIV, Fig. 4). All three were shot by Mr. Bradley in British East Africa in 1905.

Next in order, Mr. Bradley offered a fine and very valuable mounted head of a Siberian Argali,—*Ovis ammon* (Plate XIV, Fig. 5), shot by him in the Altai Mountains of Central Asia in 1906. This is a great prize. We know that in this country there are several fine pairs of horns of this matchless species of wild sheep, the largest pair being already in the National Collection, but of mounted heads we know of no others in America than those shot by Mr. Bradley.

The specimen that now is ours was shot in the early autumn, while its pelage was short, and in fact it shows in a very interesting way the transition stage, from summer to winter. The horn measurements of this head are as follows:

Basal circumference, right  $19\frac{1}{2}$  inches; left,  $19\frac{1}{2}$  inches; length on curve, right  $47\frac{1}{2}$  inches; left, 47 inches.

Circumference 18 inches from base, right  $15\frac{1}{2}$  inches; left,  $14\frac{3}{4}$  inches.

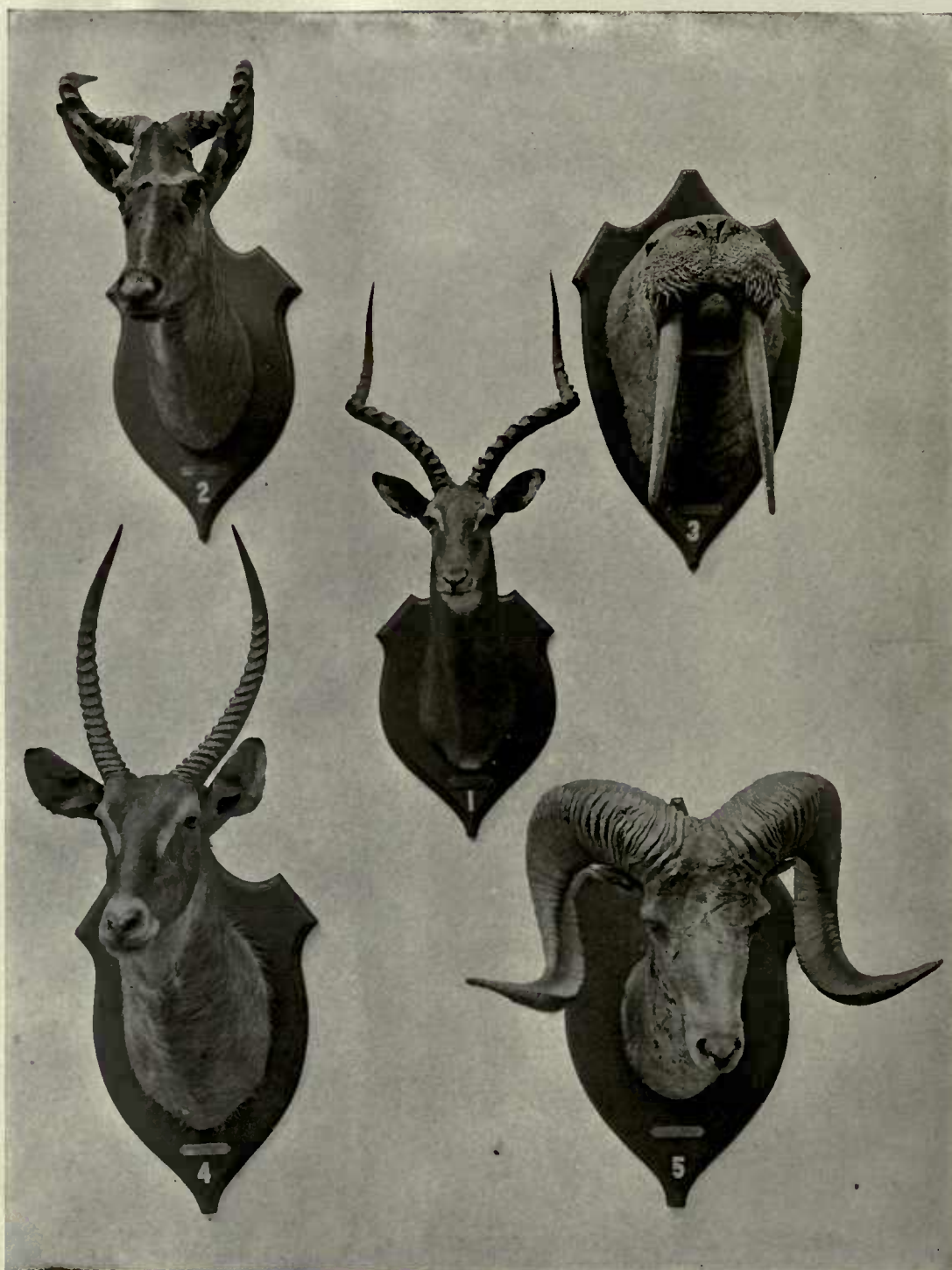
Circumference one inch from tip, right 4 inches; left,  $3\frac{3}{4}$  inches.

Distance between tips, 34 inches.

The age of the animal was about 13 years.

Mr. Bradley's last gift was the mounted head of an Atlantic Walrus, *Odobenus rosmarus* (Plate XIV, Fig. 3), shot by him in Smith Sound in 1907. By two fortunate circumstances, we are thus early placed in possession of mounted heads of both the Atlantic and Pacific Walrus, the only walrus species now in existence.





GIFTS FROM JOHN R. BRADLEY

1 Impala Antelope  
2 Coke Hartebeeste

3 Atlantic Walrus

4 Common Waterbuck  
5 Siberian Argali

## TWENTY TROPHIES FROM AFRICA

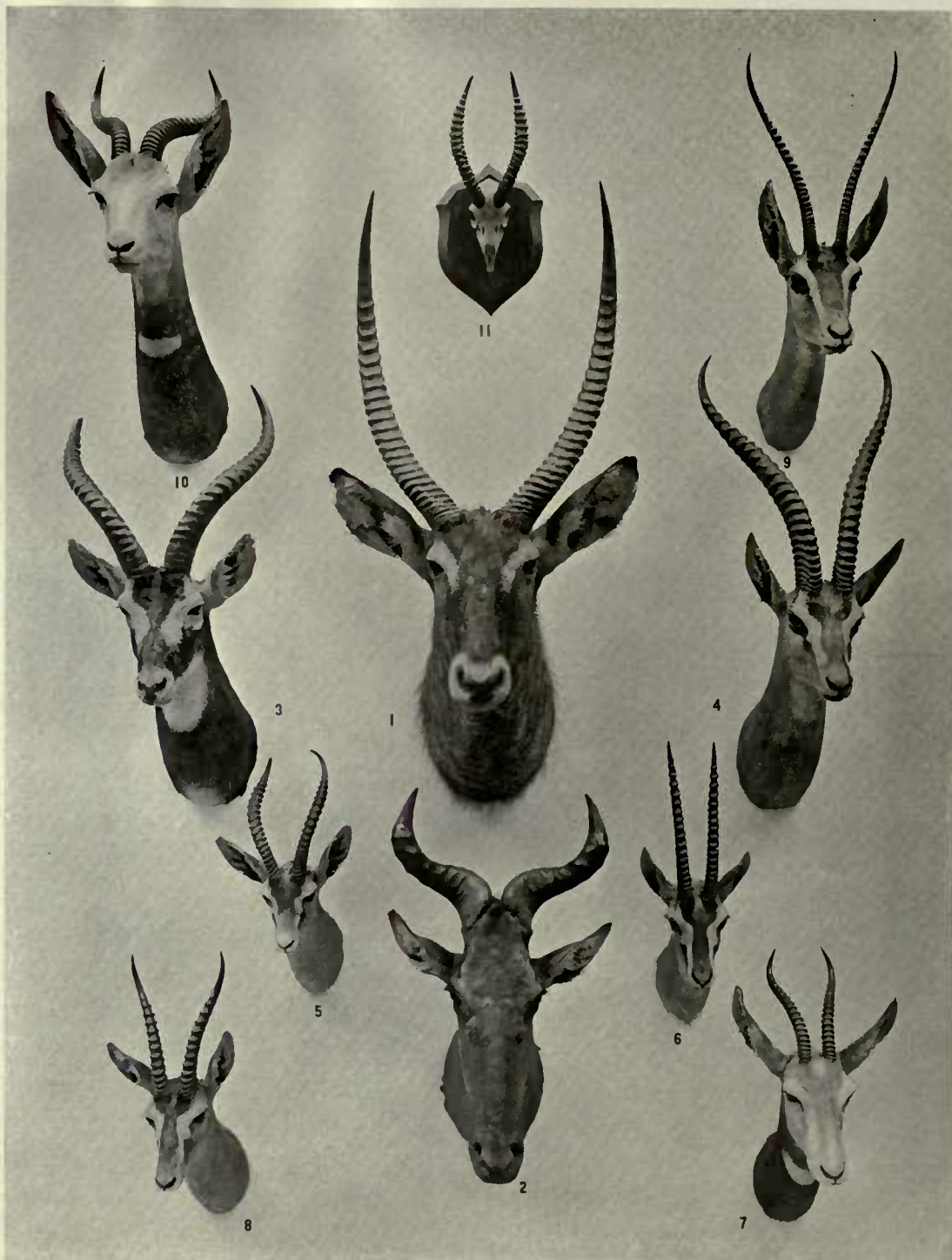
EARLY in 1907, Mr. George L. Harrison, Jr., of Philadelphia, noted the founding of the National Collection, and decided to contribute toward it. His first gift of mounted heads was presently followed by another, and a little later he added to them a highly desirable shipment, from London, of unmounted heads and horns.

Mr. Harrison has made two trips to the big-game region of East Africa in quest of large game, in both of which he was very successful. His collection contains representations of about sixty species of large mammalia, usually a pair of each. All the mounted heads presented to us by Mr. Harrison (Plate XV) were prepared by Rowland Ward, of London, and are admirably executed. Mr. Ward's men have had so much experience in the mounting of African Antelopes, and they also have in the London Zoological Gardens such fine opportunities to study living specimens, their proficiency is no cause for wonder. Those who are familiar with the group of African antelopes, gazelles, hartebeests, kudus and other forms will realize that the making of two complete collections of them is a long and toilsome task, and the possession of a hundred specimens means scarcely more than a beginning.

The collection presented by Mr. Harrison contains several specimens of prime rarity. The White-Eared Cob,—*Cobus leucotis* (Plate XV, Fig. 3), and the Red-Fronted Gazelle,—*Gazella rufifrons* (Plate XV, Fig. 8), are so rare in America that it is doubtful whether there are ten men in America who—not having hunted them—can recognize them at sight. The former is handsomely marked in a pattern of black and white. The Grant Gazelle, represented by a fine pair of heads, is assuredly one of the handsomest of the many species of *Gazella*. Of the small species, none is more dainty than the little Thomson Gazelle, which, with its large display of horns on a very diminutive head looks proud in the extreme.

The largest mounted specimen in Mr. Harrison's fine group, is the head of a Common Waterbuck,—*Cobus ellipsiprymnus* (Plate XV, Fig. 1). A complete enumeration of this valuable donation reveals the following:





GEO. L. HARRISON'S GIFT OF AFRICAN ANTELOPE HEADS

- |                    |                   |                       |
|--------------------|-------------------|-----------------------|
| 1 Common Waterbuck | 4 Grant Gazelle ♂ | 7 Addra Gazelle ♀     |
| 2 Coke Hartbeeste  | 5 Dorcas Gazelle  | 8 Red-Fronted Gazelle |
| 3 White-Eared Cob  | 6 Thomson Gazelle | 9 Grant Gazelle ♀     |
| 10 Addra Gazelle ♂ | 11 Dorcas Gazelle |                       |

## MOUNTED HEADS

(PLATE XV.)

- WATERRUCK, (*Cobus ellipsiprymnus*). ♂ Dinder River, Sudan, at Abyssinian Border. February, 1906. (Figure 1.)
- WHITE-EARED COB, (*Cobus leucotis*). ♂ Bahr-el-Zerafe and White Nile. February, 1906. (Figure 3.)
- ADDA GAZELLE, (*Gazella ruficollis*). ♂ Bara, Kordofan. January, 1907. (Figure 10.)
- ADDA GAZELLE, (*Gazella ruficollis*). ♀ Bara, Kordofan. January, 1907. (Figure 7.)
- DORCAS GAZELLE, (*Gazella dorcas*). ♂ Kordofan. January, 1908. (Figure 5.)
- GRANT GAZELLE, (*Gazella granti*). ♂ Lake Naivasha, B. E. A. August, 1904. (Fig. 4.)
- GRANT GAZELLE, (*Gazella granti*). ♀ Lake Naivasha, B. E. A. August, 1904. (Fig. 9.)
- RED-FRONTED GAZELLE, (*Gazella rufifrons*). ♂ Bara, near Kordofan. January, 1907. (Figure 8.)
- THOMSON GAZELLE, (*Gazella thomsoni*). ♂ Nairobi, B. E. Africa. January, 1904. (Figure 6.)
- COKE HARTEBEEST, (*Bubalis cokei*). ♂ Nairobi, B. E. A. July, 1904. (Figure 2.)

## UNMOUNTED HEADS, ETC.

- ABYSSINIAN BUFFALO, (*Bos equinoctialis*). Scalp.
- ABYSSINIAN BUSHBUCK, (*Tragelaphus scriptus decula*). Skull and horns.
- TORA HARTEBEEST, (*Bubalis tora*). Skull and horns.
- GRANT GAZELLE, (*Gazella granti*). Horns.
- IMPALA, (*Aepyceros melampus*). Scalp.
- DORCAS GAZELLE, (*Gazella dorcas*). Horns. (Figure 11.)
- REEDBUCK, (*Cervicapra arundinum*). Skull and horns.
- SOEMMERRING GAZELLE, (*Gazella soemmerringi*). Skull, horns and scalp.
- LION. Two skulls.

## THE NORTON GIFT

MR. John W. Norton, of New York City and Cazenovia, successful hunter in Africa and in North America, has presented to the Collection a valuable series of horns, skulls and head skins of African big game, all in a fine state of preservation, and also three mounted heads. Although the gift was offered with some hesitation, because the African heads are unmounted, both the rarity and the general excellence of the specimens justified their acceptance with gratitude. A gift which contains a Greater Kudu, an Eland, a Baker Roan Antelope and a Crawshay Waterbuck is to be regarded with unqualified appreciation.

Regarding the future of this gift, we are in an unusual dilemma. The skulls are all in so good a state of preservation that it seems a pity to lose their zoological value by mounting the head skins over them. On the other hand, the head skins are entirely too fine to be kept unmounted! If funds become available, we may yet cut the Gordian knot by having the horns removed from



the skulls, and mounting the head skins over cast skulls, thus disproving the arrogant proverb which says that "You can not have your cake and eat it, too!"

In addition to thirteen specimens collected in Africa in 1906, Mr. Norton's gift includes three mounted heads from Wyoming, one of which is of a female Prong-Horned Antelope which bears *horns*. Few sportsmen, we venture to say, ever have seen such a specimen. The complete list of Mr. Norton's gift is as follows:

AMERICAN WAPITI, (*Cervus canadensis*). ♀ Mounted head.

PRONG-HORNED ANTELOPE, (*Antilocapra americana*). ♀ Mounted head.

MULE DEER, (*Odocoileus hemionus*). ♀ Mounted head.

CRAWSHAY WATERBUCK, (*Cobus crawshayi*). Skull, horns and skin.

COMMON WATERBUCK, (*Cobus ellipsiprymnus*). Skull, horns and skin.

COMMON WATERBUCK, (*Cobus ellipsiprymnus*). Skull, horns and skin.

GRANT GAZELLE, (*Gazella granti*). Skull, horns and skin.

GRANT GAZELLE, (*Gazella granti*). Skull, horns and skin.

ELAND, (*Taurotragus oryx*). Skull, horns and skin.

GREATER KUDU, (*Strepsiceros kudu*). Skull, horns and skin.

BAKER ROAN ANTELOPE, (*Hippotragus bakcri*). Skull, horns and skin.

IMPALA, (*Aepyceros melampus*). Skull, horns and skin.

WARD REDUNCA ANTELOPE, (*Cervicapra redunca wardi*). Skull, horns and head skin.

WARD REDUNCA ANTELOPE, (*Cervicapra redunca wardi*). Horns on skull.

IMPALA, (*Aepyceros melampus*). Horns on skull.

COKE HARTEBEEST, (*Bubalis cokci*). Horns on skull.

## THE RAREST BISON HEAD

MR. Caspar Whitney's gift (Figure 18) of a finely-mounted head of a Wood Bison constitutes a notable addition. Few indeed are the preserved specimens, mounted or unmounted, which represent the very last important wild remnant of the American Bison species. With the exception of the pitifully small band of about twenty-five head in the Yellowstone Park,—reduced from 300 by the murderous attacks of poachers who ought to be hanged as fast as they can be located,—no other wild Bison remain alive save the Canadian herd of the far north. In the central portion of the province of Athabasea, in what is known as the "Peace River Country," there are a number of small herds of Bison. When Ernest T. Seton penetrated that region in 1907, he saw three bands, and counted thirty-five head, three of which were calves. Mr. Seton's estimate of the total number of Bison in that region is 300; and that is also the estimate of the Canadian Mounted Police of that district.



FIG. 18.—WOOD BISON HEAD

For some reason that remains to be fully explained, the herds of that region are not increasing as they should. In fact, the total seems practically at a standstill. For this, two causes have been suggested,—poaching, and the destruction of young stock by gray wolves. For the past six years, the bison of Athabasca have been protected by the laws of the Canadian government, and the bounty on gray wolves, taken in that region, has been raised to \$20 per



head. It is understood that for the future more stringent methods will be adopted for the prevention of poaching.

Regarding the precise character of the Wood Bison, much remains to be disclosed, but the cessation of all killing relegates the gathering of more "material" to the distant future. Judge, then, the zoological value of the head presented by Mr. Whitney, and of the very, very few other specimens of the kind which possibly exist elsewhere. So far as we are aware, in the days when this so-called "Wood" Bison could lawfully be hunted and shot, no sportsman ever killed one. The only complete specimen known to the writer is a huge mounted bull in the Government Museum at Ottawa.

The head in the National Collection shows one marked peculiarity. The hair of the entire head, exclusive of the neck and chin, is remarkably curly, and of a uniform, deep-black color. The hair of the forehead, muzzle and cheeks looks as if it had been gone over with curling-irons. The frontlet is rather short, suggesting a September growth; but the beard is of good length.

Judging by the horns, the animal was, when killed, about six or seven years old. The head is in an excellent state of preservation, and in view of all circumstances it is of really priceless value. The measurements of the horns are as follows:

Circumference at base.....	15 inches
Length on outer curve.....	18 $\frac{3}{4}$ "
Greatest outside spread.....	30 $\frac{3}{4}$ "
Distance between tips.....	27 $\frac{1}{2}$ "

## A TROPHY FROM THE BARREN GROUNDS

**I**N the year 1889, Mr. Warburton Pike came from a comfortable London club to the wilds of Canada, and immediately penetrated the Barren

Grounds north of Great Slave Lake to the home of the Musk-Ox. We believe he was the first sportsman who ever saw the Barren-Ground Musk-Ox at home, the first to describe that animal on its native heath, and map the lake region northeastward of Great Slave Lake. The terrible hardships endured by the daring explorer during his winter trip to the Barren Grounds, combined with a wealth of valuable observations, are recorded in Mr. Pike's



FIG. 19.—BARREN GROUNDS MUSK-OX HEAD

first book "The Barren Grounds of Northern Canada," (Macmillan, 1892), a work that now is justly famous, especially among sportsmen and naturalists.

Naturally, the head trophies which it is possible for a hunter to bring out of the Barren Grounds in midwinter, are few in number. The majority of those shot and preserved by Mr. Pike were finally abandoned as the party fled southward to escape death by freezing or starvation. Of the few that



were saved, one of the finest appears in Rowland Ward's list of "record" Musk-Ox heads, for the world, as No. 8 from the top. The trophy (Figure 19) which Mr. Pike selected to represent him in the National Collection of Heads and Horns is very nearly equal to that mentioned above.

One glance at the long, wide-sweeping horns and long brown hair of this specimen is sufficient to convince any sportsman that it is indeed "one of the finest." It takes on additional interest from the fact that it was mounted by our old friend, the late John Fannin, formerly curator of the Victoria (B. C.) Museum, who by many sportsmen and naturalists of the United States as well as Canada, is affectionately remembered.

The measurements of Mr. Pike's justly famous Musk-Ox head are as follows:

Length on curve,  $26\frac{3}{4}$  inches; widest outside spread, 28 inches; distance between tips,  $26\frac{3}{4}$  inches; width across base,  $8\frac{3}{4}$  inches; circumference at base,  $20\frac{1}{2}$  inches.

## A MAGNIFICENT BIG-HORN HEAD

THERE is only one English adjective which fitly and adequately describes the Mountain Sheep head, from Lower California, that has just been presented to this collection by Mr. George H. Gould, of Santa Barbara. That word is "magnificent." It is not only one of the finest heads ever taken on the American continent, but I think that it is probably the greatest trophy of *Ovis canadensis* that ever fell to the rifle of a gentleman sportsman. There are three other very fine heads with which the writer is acquainted, but all of them were taken by mercenaries and sold for what they would bring in coin. In the great majority of cases it is the local Indian, or "resident" hunter or guide, who has the time to follow up "the head of heads" until he brings it down.

As one sees the "Gould head" for the first time (Figure 20), its surpassing qualities are apparent at a glance. The horns are not only of great size and length, but they are absolutely perfect in surface and in general preservation, and their splendid circle and outward spread are everything that could be desired. We had seen illustrations of this head, but it is now clear that not one of them ever conveyed a more than half adequate impression of the reality.





FIG. 20.—LOWER CALIFORNIA BIG-HORN HEAD

Already this head is historic, and is known to many American sportsmen on both sides of the continent. It was exhibited at the first Sportsmen's Show in New York, in May, 1895, and the judges of the heads shown there by "amateur sportsmen," reported as follows: "It is, on the whole, the finest head of which we have any record." Its official measurements were then recorded in "Hunting in Many Lands," a "Book of the Boone and Crockett Club," on page 428, as follows: girth,  $16\frac{1}{4}$  inches; length on curve,  $42\frac{1}{2}$  inches; spread,  $25\frac{3}{4}$  inches. To those we will add two more that are of importance; circumference 18 inches from base, 13 inches; circumference one inch from tip,  $4\frac{3}{4}$  inches.



In Rowland Ward's "Records of Big Game," this head stands as No. 3 in a list of 55, which has been arranged according to the length on the curve. The death of this ram is described by Mr. Gould in the "Book of the Boone and Crockett Club" for 1905, on page 55, under the title "To the Gulf of Cortez." On the brass plate affixed to the shield of this gift, the donor has caused to be engraved the following inscription: "Gift of George H. Gould, Santa Barbara, California. Shot December, 1894, in eastern part of Lower California, about latitude  $31^{\circ}$ , just north of the northern end of San Pedro Martir Mountains."

Every sportsman will fully appreciate the generosity of Mr. Gould in thus bestowing, in this collection, his most valuable trophy. Not only does it stand for the chief incident of a very severe trip, but its intrinsic value is very considerable.

## A NEW SUB-SPECIES OF TAKIN

FROM the Hon. Mason Mitchell, now American Consul at Chungking, China, but soon to be transferred to Apia, Samoa, we have received what is undoubtedly the rarest specimen thus far acquired by the National Collection. It is the entire skin, skull and horns of a Takin, from the province of Szechuan, Western China, of a form that is new to science, and which has very recently been described by Mr. Lydekker and christened *Budorcas taxicolor mitchelli*, in honor of its discoverer.

Until very recently, not one specimen of that rare and curious creature, half goat and half antelope, and larger than a mule deer, ever had been killed by a white man. The species was known solely by two or three mounted skins, and perhaps a dozen pairs of horns that had been taken by native hunters and carried across the border from southern China into northeastern Assam. The "nucleus collection" contained a pair of horns, as shown in Plate IV, (Fig. 6), of Part I, but no one looked forward to further accessions from that species at this early date.

In a case that has been five months in transit, and that looked as if it had come from the farthest corner of the earth; closely swathed in many thicknesses of cloth, sewed up like a mummy and smelling of the most pungent of the powders that are dealt in by the Chinese apothecary to keep off bugs, mice and rats

of all sorts, there came to us a whole skin, skull and horns of a full grown male Takin. It was shot by Mr. Mitchell in the province of Szechuan, western China; which is many days hard travel beyond Chungking, which is 1500 miles up the Yengtse-Kiang River.

Judging from the skin before us, this animal is about the size of a Sable Antelope (*Hippotragus niger*); and its hair is straight, close and antelope-like. *Budorcas taxicolor* is distinguished by the redness of its pelage, but *B. t. mitchelli* may be described as a yellowish-gray animal, with rufus shoulders, a black or dark dorsal stripe, and a black face-patch. Mr. Mitchell says that in Szechuan both the red and the gray Takin are found, the former usually being found in small herds, the latter solitary. The type of the new subspecies is believed to be by this date in the British Museum of Natural History at South Kensington.

Unfortunately, at this moment, it is a practical impossibility to present an illustration of this unique gift that would adequately portray it. As soon as the head is mounted, however, the skin will be displayed beneath it, and both will then be fit subjects for the camera.

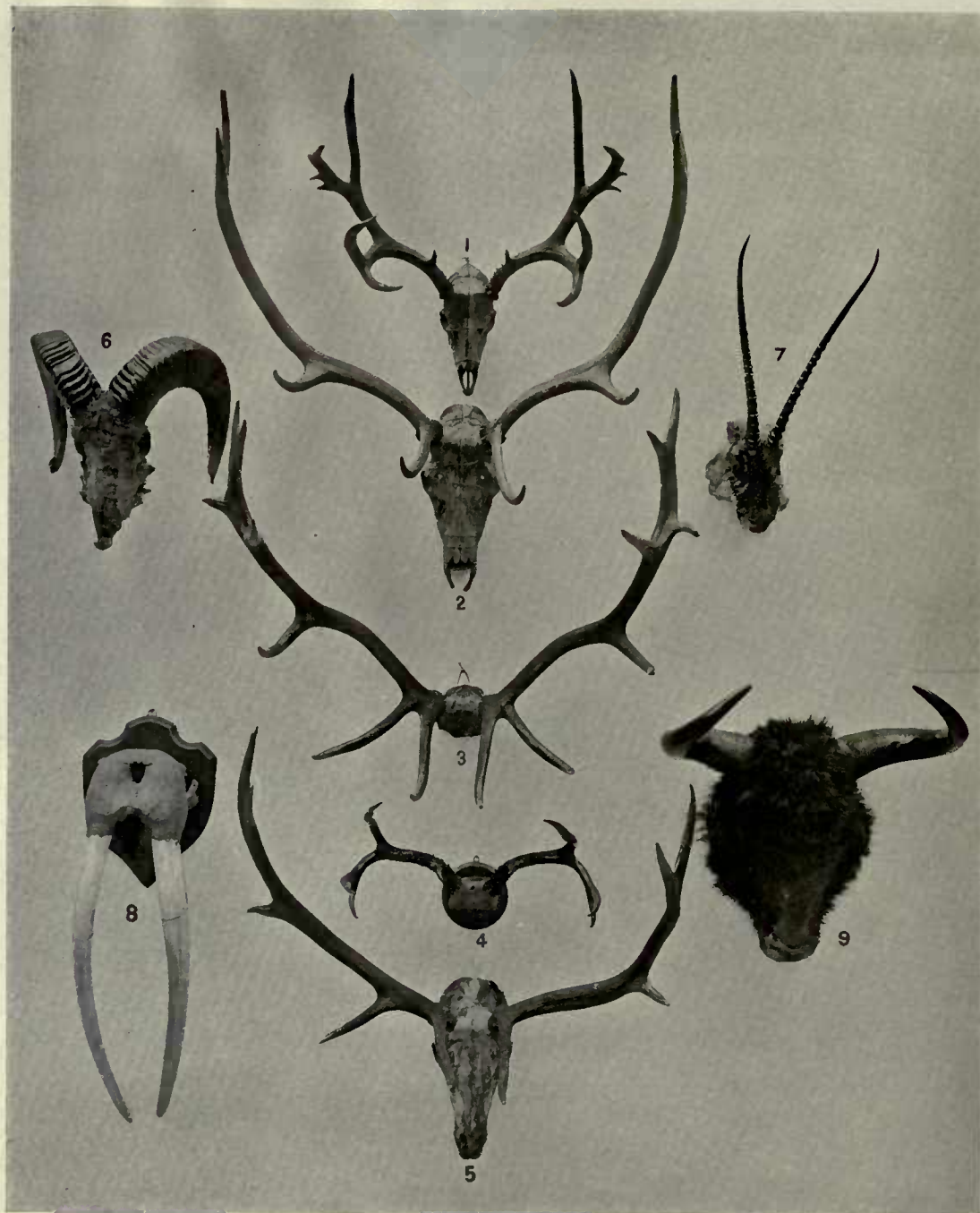
## GIFTS OF FERDINAND KAEGBEHN

**B**ECAUSE of Mr. Kaegebehn's special interest in the Wapiti group of the round-horned deer, in the last years of the Arizona Wapiti of the Santa Catalina Mountains he secured a fine pair of antlers representing that species. Although living as late as 1901, the species is now believed to be quite extinct; and what is still worse, there now appear to be in existence *only three pairs* of its antlers, of which the gift of Mr. Kaegebehn is one. Our specimen was collected in 1884 by F. W. Heyne, Superintendent of the Arizona Copper Prince Mines, of Bisbee, Arizona. We are fortunate in securing this rare and zoologically valuable specimen of an important American species that was not even described until it was "already on the verge of extinction."\* It appears as Fig. 2 in Plate XVI, and its measurements are as follows: Length on curve, left  $40\frac{3}{4}$  inches; right  $37\frac{1}{4}$  inches; outside spread 43 inches; circumference of burr,  $9\frac{1}{2}$  inches, and above burr 9 inches. It will be

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\* E. W. Nelson, in BULLETIN of the American Museum of Natural History, 1902. P. 1.





MISCELLANEOUS GIFTS

- |                  |                    |                        |
|------------------|--------------------|------------------------|
| 1 Mule Deer      | 4 Desert Mule Deer | 7 Tibetan Antelope     |
| 2 Arizona Wapiti | 5 Maral Deer       | 8 Pacific Walrus Tusks |
| 3 Olympic Wapiti | 6 Tibetan Argali   | 9 Wild Yak             |

Nos. 1, 2, 3, 4, 5 gift of Ferdinand Kaegebehn; 6, 7, 9 gift of William Jamrach;  
8 gift of Madison Grant

noticed that these antlers possess only one pair of brow tines, in which it appears to be unique among the Wapiti of the world.

While the Olympic Wapiti, of the Olympic Mountains, Washington, is not entitled to the specific rank that once was accorded to it, it is highly desirable that that isolated group of *Cervus canadensis* should be represented in this collection.

The pair of Maral Deer antlers (Plate XVI, Fig. 5), presented by Mr. Kaegebehn are without a definite locality, but their identity seems unmistakable. The Mule Deer antlers (Plate XVI, Fig. 1), from Montana, are of good size and symmetry. The single horn of an American Bison is a very large specimen with a melancholy history. It is from the bull which treacherously murdered Dick Rock, the well-known ranchman and wild-animal fancier of Henry's Lake, Idaho.

In addition to the interesting and valuable group of horns listed above, Mr. Kaegebehn has presented a large series of old line engravings executed by Johann Elias Ridinger, depicting European red deer, fallow deer and roedeer in their haunts and in the chase. This may be regarded as the first contribution to a collection that must be formed as rapidly as possible to illustrate the rise and progress of wild-animal painting and sculpture.

The full list of Mr. Kaegebehn's gifts is as follows:

ARIZONA WAPITI, (*Cervus merriami*). Santa Catalina Mountains, Arizona. Antlers and skull. (Plate XVI, Fig. 2.)

OLYMPIC WAPITI, (*Cervus canadensis occidentalis*). Olympic Mountains, Washington. Antlers. (Plate XVI, Fig. 3.)

MARAL DEER, (*Cervus elaphas maral*). Caucasus Mountains. Antlers and skull. (Plate XVI, Fig. 5.)

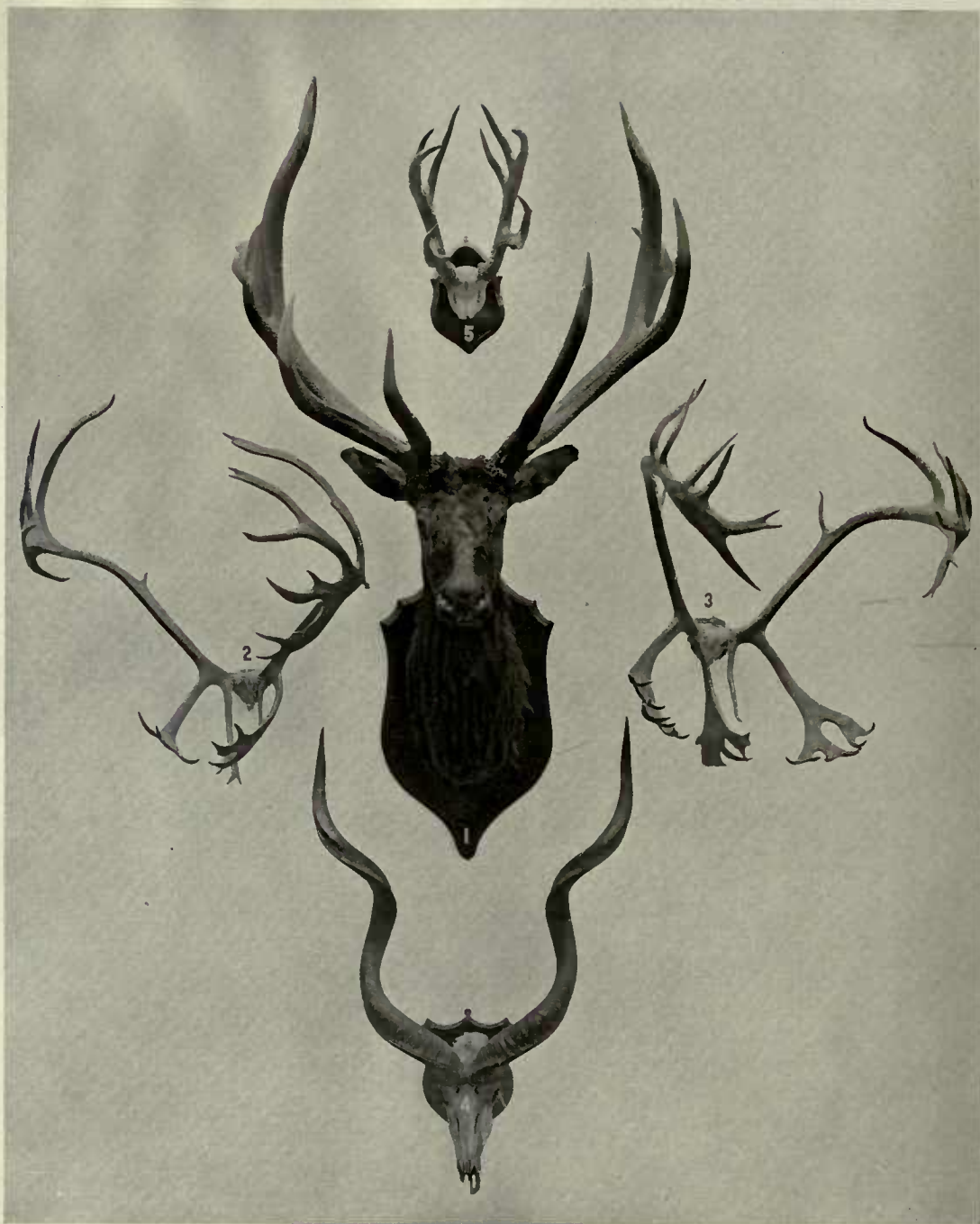
DESERT MULE DEER, (*Odocoileus hemionus eremicus*). Tiburon Island. Antlers. (Plate XVI, Fig. 4.)

MULE DEER, (*Odocoileus hemionus*). Montana. Antlers and skull. (Plate XVI, Fig. 1.)

AMERICAN BISON, (*Bos americanus*). Idaho. Right horn.

A collection of old copper prints of wild animals, by Johann Elias Ridinger. 1 large print, 25 display-size prints and fifty folio-size. Subjects, principally remarkable specimens of red deer, fallow deer and roedeer.





MISCELLANEOUS GIFTS

- 1 American Wapiti  
2 Wild Reindeer

- 3 Wild Reindeer

- 4 Greater Kudu  
5 South American Marsh Deer

No. 1 gift of Thomas D. Leonard; 2 gift of Fred. Sauter; 3 gift of Ruthven W. Pike;  
4 gift of Alexander Brown; 5 gift of Edgar F. Randolph

## MISCELLANEOUS GIFTS

From MADISON GRANT, New York City:

PACIFIC WALRUS. Tusks. (Plate XVI, Fig. 8.)

WHITE MOUNTAIN SHEEP, (*Ovis dalli*). Two mounted heads of female and young.

The Walrus tusks (Plate XVI, Fig. 8) presented by Mr. Grant are of extraordinary length and size, and beyond doubt they are among the largest on record. Even as they now are, after about  $3\frac{1}{2}$  inches have been sawn off from the base of each tusk, they measure  $31\frac{1}{2}$  inches in length, and  $8\frac{7}{8}$  inches in greatest circumference. In West Africa they would pass readily as elephant tusks. They were collected in Bering Sea regions by the late Captain Z. L. Tanner, for many years on duty in northern Pacific waters on the U. S. S. Albatross.

The two heads of White Mountain Sheep presented by Mr. Grant are of special interest because they were obtained at the "farthest north" of their species, in the extreme northern end of the Rocky Mountain chain, about forty miles west of the Mackenzie River and *only fifty miles from the Arctic Ocean!* So far as we are aware, the locality represented by these two specimens is the most northerly outpost of the Genus *Ovis*.

From THOMAS D. LEONARD, New York:

AMERICAN WAPITI. Mounted head. (Plate XVII, Fig. 1.)

Naturally, a National Collection of Heads and Horns formed in America will be expected to contain several heads of an important species like the American Wapiti. Manifestly it is impossible for one or two specimens adequately to illustrate the antlers of the largest round-horned deer of the world. There are antlers of several distinct types,—the massive, the slender, the wide spreaders, the antlers that are "cupped" at their extremities, and others.

Mr. Leonard has presented to the collection its first Wapiti head. It was selected by him in the Jackson Hole Country of Wyoming, because of its very massive construction. In all their upper tines, these antlers are unusually heavy, but unfortunately no photograph adequately brings out this feature. As every sportsman is aware, the antlers of greatest length are almost invariably rather slender; but I think that in the eyes of most hunters, massiveness



is regarded quite as desirable as slender length. By some—of whom the writer is one—the longest horns are not necessarily to be regarded as “the finest.”

From HENRY SAMPSON, JR., and E. H. LITCHFIELD, JR., New York:

BIG-HORN SHEEP, (*Ovis canadensis*). From the northeastern portion of Lower California, Mexico. Mounted head.

On November 22, 1907, Mr. Sampson and Mr. Litchfield were hunting on the eastern slope of the Peninsula of Lower California, 125 miles south of Calexico. There they killed nine fine mountain sheep rams, representing what appears to be *Ovis canadensis*. Incidentally, they were there left in the lurch by their Cocopah Indians, who took all the horses owned by them and returned to their homes, leaving the two sportsmen and their guide to pack their equipment and trophies on their riding animals, and walk 125 miles back to the railway.

Messrs. Sampson and Litchfield have presented to the National Collection one of their hard-earned trophies. It is a valuable exhibit, for it represents the sheep on the western side of the Gulf barrier from the Pinacate Mountains. Unfortunately its mounting is not yet complete, and an illustration of it must therefore be deferred until the next issue of this publication.

The horn measurements made in the field by the two sportsmen are as follows:

	Right horn.	Left horn.
Circumference at base.....	14 $\frac{3}{4}$	15
Circumference 15 inches from tip.....	10 $\frac{3}{4}$	10 $\frac{7}{8}$
Circumference 1 inch from tip.....	3	3 $\frac{3}{4}$
Length on curve.....	34 $\frac{1}{2}$	33 $\frac{3}{4}$
Ears, 2 $\frac{1}{2}$ inches wide; 4 inches high inside; 4 $\frac{1}{2}$ inches high outside.		

In this specimen we see no specific differences from those taken on Pinacate during the same week.

From LIEUT. G. T. EMMONS, U. S. N., Princeton, N. J.:

Although it is neither a head nor a horn, the bear claw (Figure 21) presented by Lieut. Emmons may well find a permanent abiding place in the National Collection. Of all the claws ever seen by the writer, this is the most remarkable. Even with its base squared off, it has a length on the curve of

10½ inches, but its greatest width is only ⅝ of an inch. It forms a complete and perfect circle, and the point overlaps the base for an additional quarter of a circle. Its color is light brown, with streaks of a lighter shade, and it shows no wear whatever. Possibly this claw and its mate were developed by a bear kept in captivity; but that theory seems hardly tenable. The outer surface of

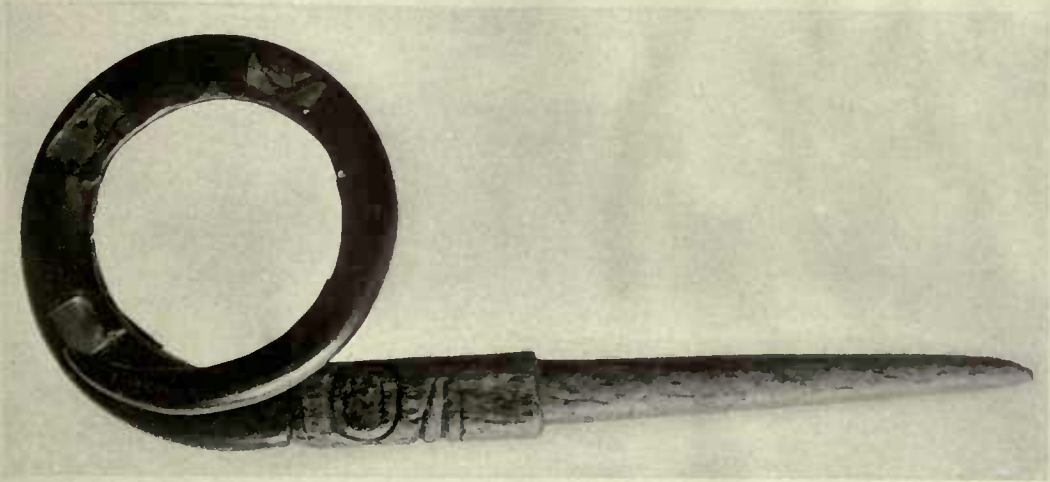


FIG. 21.—REMARKABLE BEAR CLAW  
Two-thirds natural size

the claw shows no wear; and it is very unlikely that the Indians of the Nass River country ever would have kept a live bear in captivity for three or four years.

Lieut. Emmons has kindly furnished with his gift the following information regarding it:

“It came from the “Kiskka” village of “Iyaush” on the Nass River, in British Columbia, which is about 112 miles from Fort Simpson, at the mouth of Portland Canal. The bear claw is attached to a whale-bone spike ornamentally carved at the head to represent a bear’s head. Both the claw and the spike are inlaid with haliotis shell. This was worn as a head-dress ornament upon dance and ceremonial occasions. Two such ornaments were used, one on each side of the head, above the ear, stuck into a band of fur or birds’ down going around the forehead. These were old family pieces that had been preserved through a number of generations, and were highly valued. The claw was believed to have been from an immense frog that lived in a mountain lake in the adjacent country. The one I have retained measures 9½ inches in length.”



From EDGAR F. RANDOLPH, Morristown, N. J.:

SOUTH AMERICAN MARSH DEER, (*Blastoceros paludosus*). Antlers. (Plate XVII, Fig. 5.)

SWAMP DEER, (*Blastoceros campestris*). Antlers.

ADDAX ANTELOPE, (*Addax naso-maculatus*). Horns.

By means of a contribution in cash from Mr. Randolph, the three rare and very desirable specimens mentioned above were purchased for the Collection, from Fred. Sauter. The antlers of the Swamp Deer came into Mr. Sauter's hands "by accident, for the first time in many years," and it was a great satisfaction to be able to secure them. The Marsh Deer antlers (Plate XVII, Fig. 5) are unusually large, and the horns of the desert-born Addax are rarely seen in collections.

From ALEXANDER BROWN, Bryn Mawr, Penn.:

GREATER KUDU, (*Strepsiceros kudu*). Horns. (Plate XVII, Fig. 4.)

With a cash contribution from Mr. Brown, a great bargain in Kudu horns was secured. It is to be remembered that by reason of the need for two complete series of heads and horns, to be arranged geographically and zoologically, two specimens of each horned and tusked species are absolutely necessary. Mr. Brown's gift provides our second specimen of horns of the Greater Kudu; but later on we must look for two mounted heads, also.

From WILLIAM JAMRACH, 63 Lordship Road, Stoke Newington, London:

WILD YAK, (*Bos grunniens*). Horns. (Plate XVI, Fig. 9.)

TIBETAN ARGALI, (*Ovis hodgsoni*). Horns. (Plate XVI, Fig. 6.)

CHIRU; TIBETAN ANTELOPE, (*Pantholops hodgsoni*). Horns. (Plate XVI, Fig. 7.)

Mr. Jamrach's gift is *the first one from beyond the Atlantic*; and it represents the heart of Asia. For many years Mr. Jamrach has maintained lines of communication reaching into the home of the Markhor, the Arcal Sheep, the Tibetan Argali and the Himalayan Ibex. The Takin horns in the "nucleus collection," representing one of the rarest and least known large animals of the old world, came from him.

All three of the species represented by this very interesting gift are new to the Collection, and fill important gaps in the zoological series. The Tibetan Argali horns are particularly desirable in our *Ovis* series. They differ from those of the Siberian Argali by being much shorter, and also smaller at the tip. But for the rounded front angle, and their many heavy rings, they might easily be mistaken for the horns of our Rocky Mountain Big-Horn, (*O. canadensis*).

FROM JAMES S. MARTIN, New York:

WHITE MOUNTAIN GOAT, (*Oreamnos montanus*). ♀ Cross River, B. C., 1906. Mounted head.  
YOUNG MOUNTAIN GOAT, (*O. montanus*). Same locality and date. Mounted head.

FROM RUTHVEN W. PIKE, Strasburg, Virginia:

WILD REINDEER, (*Rangifer tarandus*). Antlers. (Plate XVII, Fig. 3.)

These antlers were obtained from Fred. Sauter, who also presented another pair, with the statement that they were the largest that ever had come into his possession.

FROM FRED. SAUTER, New York:

WILD REINDEER, (*R. tarandus*). Antlers. (Plate XVII, Fig. 2.)

These two pairs fit in excellently with the antlers of Caribou already in the collection, and supply both the zoological and geographical needs.

FROM JOHN M. PHILLIPS, Pittsburg, Pa.:

PRONG-HORNED ANTELOPE, (*Antilocapra americana*) from the Pinacate Mountains, N. W. Mexico. Mounted head. (Figure 22.)

This head is of special interest because of the locality from which it came. The Antelope of Pinacate, on the eastern shore of the Gulf of California, represent one of the southern outposts of the genus *Antilocapra*. In the state of Chihuahua it reaches much farther southward, but at Pinacate its advance southward is abruptly halted by the deserts and barren mountains that border the Gulf.

The head shot and presented by Mr. Phillips is very odd-looking, even for an Antelope. The horns do not curve over at the tip, but they are studded with many small black points, in a manner never observed by the writer in northern



FIG. 22.—PRONG-HORNED ANTELOPE



specimens. The neck is small, and the hair is short and thin, but the markings are practically the same as those found on northern specimens. This is the first head that has been brought out of the Pinacate district, and it may also easily happen that it is the last.

FROM C. WILLIAM BEEBE, New York:

TRINIDAD WHITE-TAILED DEER, (*Odocoileus nemorivega*). Two skulls, with antlers.

In view of the many American naturalists who have collected on the Island of Trinidad for various museums, it seems rather strange that Mr. Beebe's specimens should be the first of their kind ever brought to the United States! The antlers are remarkable for their similarity in form to those of the Tunkas Brocket, (*Odocoileus rufinus*), being only small, straight spikes of bone, 3 inches in length, and destitute of branches. The skull of this species, however, is very much larger than that of the Brocket. The heaviest of these deer weighed, entire, 80 pounds, and the other 77.

FROM DEXTER M. GLEASON, Woodford, Vermont:

WHITE-TAILED DEER, (*Odocoileus virginianus*). First antlers.

These horns are remarkable for their length, as "dag" antlers. The right antler has been broken, but the left measures  $11\frac{1}{4}$  inches.

A LIST OF THE HEADS, HORNS  
AND OTHER TROPHIES PRESENTED TO  
THE NATIONAL COLLECTION OF HEADS AND HORNS,  
FROM APRIL 1, 1907, TO JULY 1, 1908.

BISON, BUFFALOES AND OTHERS

GENUS *BOS*.

- ABYSSINIAN BUFFALO.—*Bos equinoctialis*. George L. Harrison, Jr. Scalp.  
WILD YAK.—*B. grunniens*. William Jamrach. Horns. [Plate XVI, Fig. 9.]  
WOOD BISON.—*B. americanus*. Caspar Whitney. Mounted head. [Fig. 18.]  
AMERICAN BISON.—*B. americanus*. Ferdinand Kaegebehn. Horn.

GENUS *OVIBOS*.

- BARREN-GROUNDS MUSK-OX.—*Ovibos moschatus*. [Fig. 19.]  
Warburton Pike. Mounted head.

MOUNTAIN SHEEP

GENUS *OVIS*.

- SIBERIAN ARGALI.—*Ovis ammon*. John R. Bradley. [Plate XIV, Fig. 5.]  
Mounted head.  
TIBETAN ARGALI.—*O. hodgsoni*. William Jamrach. Horns. [Plate XVI, Fig. 6.]  
BIG-HORN MOUNTAIN SHEEP.—*O. canadensis*. [Fig. 20.]  
George H. Gould. Mounted head.  
BIG-HORN MOUNTAIN SHEEP.—*O. canadensis*.  
Henry Sampson, Jr., and E. H. Litchfield, Jr. Mounted head.  
WHITE MOUNTAIN SHEEP.—*O. dalli kenaiensis*. Emerson McMillin. Mounted head.  
WHITE MOUNTAIN SHEEP.—*O. d. kenaiensis*. Emerson McMillin. Mounted head.  
WHITE MOUNTAIN SHEEP.—*O. d. kenaiensis*. Emerson McMillin. Mounted head.  
WHITE MOUNTAIN SHEEP.—*O. d. kenaiensis*. Emerson McMillin. Horns, skull, scalp.  
WHITE MOUNTAIN SHEEP.—*O. d. kenaiensis*. Emerson McMillin. Horns, skull, scalp.  
WHITE MOUNTAIN SHEEP.—*O. d. kenaiensis*. Emerson McMillin. Horns, skull, scalp.  
WHITE MOUNTAIN SHEEP.—*O. d. kenaiensis*. Emerson McMillin. Horns, skull, scalp.  
WHITE MOUNTAIN SHEEP.—*O. d. kenaiensis*. Emerson McMillin. Horns, skull, scalp.  
WHITE MOUNTAIN SHEEP.—*O. d. kenaiensis*. Emerson McMillin. Horns, skull, scalp.  
WHITE MOUNTAIN SHEEP.—*O. d. kenaiensis*. Emerson McMillin. Horns, skull, scalp.  
WHITE MOUNTAIN SHEEP.—*O. dalli*. Madison Grant. Mounted head. ♀  
WHITE MOUNTAIN SHEEP.—*O. dalli*. Madison Grant. Mounted head. Juv.

WILD GOATS

GENUS *OREAMNOS*.

- WHITE MOUNTAIN GOAT.—*Oreamnos montanus*. James S. Martin. Mounted head. ♀  
WHITE MOUNTAIN GOAT.—*O. montanus*. James S. Martin. Mounted head. Juv.

GENUS *BUDORCAS*.

- TAKIN.—*Budorcas taxicolor mitchelli*. Hon. Mason Mitchell, Chungking, China.  
Skull, horns, skin.



## ANTELOPES

GENUS *BUBALIS*.

- COKE HARTEBEESTE.—*Bubalis cokei*. John R. Bradley. [Plate XIV, Fig. 2.]  
 Mounted head.  
 COKE HARTEBEESTE.—*B. cokei*. George L. Harrison, Jr. [Plate XV, Fig. 2.]  
 Mounted head. ♂  
 COKE HARTEBEESTE.—*B. cokei*. John W. Norton. Horns and skull.  
 TORA HARTEBEESTE.—*B. tora*. George L. Harrison, Jr. Horns and skull.

GENUS *COBUS*.

- WHITE-EARED COB.—*Cobus leucotis*. George L. Harrison, Jr. [Plate XV, Fig. 3.]  
 Mounted head.  
 COMMON WATERBUCK.—*C. ellipsiprymnus*. [Plate XV, Fig. 1.]  
 George L. Harrison, Jr. Mounted head.  
 COMMON WATERBUCK.—*C. ellipsiprymnus*. John R. Bradley. [Plate XIV, Fig. 4.]  
 Mounted head.  
 COMMON WATERBUCK.—*C. ellipsiprymnus*. John W. Norton. Skull, horns and scalp.  
 COMMON WATERBUCK.—*C. ellipsiprymnus*. John W. Norton. Skull, horns and scalp.  
 CRAWSHAY WATERBUCK.—*C. crawshayi*. John W. Norton. Skull, horns and scalp.

GENUS *CERVICAPRA*.

- REEDBUCK.—*Cervicapra arundinum*. George L. Harrison, Jr. Skull and horns.  
 WARD REDUNCA ANTELOPE.—*C. redunca wardi*. John W. Norton.  
 Skull, horns and scalp.  
 WARD REDUNCA ANTELOPE.—*C. redunca wardi*. John W. Norton. Horns on skull.

GENUS *AEPYCEROS*.

- PALA, OR IMPALA.—*Aepyceros melampus*. John R. Bradley. [Plate XIV, Fig. 1.]  
 Mounted head.  
 PALA, OR IMPALA.—*Ae. melampus*. George L. Harrison, Jr. Scalp.  
 PALA, OR IMPALA.—*Ae. melampus*. John W. Norton. Skull, horns and scalp.  
 PALA, OR IMPALA.—*Ae. melampus*. John W. Norton. Horns on skull.

GENUS *GAZELLA*.

- ADDRA GAZELLE.—*Gazella ruficollis*. George L. Harrison, Jr. [Plate XV, Fig. 10.]  
 Mounted head. ♂  
 ADDRA GAZELLE.—*G. ruficollis*. George L. Harrison, Jr. [Plate XV, Fig. 7.]  
 Mounted head. ♀  
 DORCAS GAZELLE.—*G. dorcas*. George L. Harrison, Jr. [Plate XV, Fig. 5.]  
 Mounted head. ♂  
 DORCAS GAZELLE.—*G. dorcas*. George L. Harrison, Jr. Horns. [Plate XV, Fig. 11.]  
 RED-FRONTED GAZELLE.—*G. rufifrons*. George L. Harrison, Jr. [Plate XV, Fig. 8.]  
 Mounted head. ♂  
 THOMSON GAZELLE.—*G. thomsoni*. George L. Harrison, Jr. [Plate XV, Fig. 6.]  
 Mounted head. ♂  
 SOEMMERRING GAZELLE.—*G. soemmerringi*. George L. Harrison, Jr.  
 Skull, horns, scalp.  
 GRANT GAZELLE.—*G. granti*. George L. Harrison, Jr. [Plate XV, Fig. 4.]  
 Mounted head. ♂  
 GRANT GAZELLE.—*G. granti*. George L. Harrison, Jr. [Plate XV, Fig. 9.]  
 Mounted head. ♀  
 GRANT GAZELLE.—*G. granti*. George L. Harrison, Jr. Horns.  
 GRANT GAZELLE.—*G. granti*. John W. Norton. Skull, horns, scalp.  
 GRANT GAZELLE.—*G. granti*. John W. Norton. Skull, horns, scalp.

GENUS *HIPPOTRAGUS*.

- BAKER ROAN ANTELOPE.—*Hippotragus bakeri*. John W. Norton.  
 Skull, horns and scalp.

GENUS *TRAGELAPHUS*.

ABYSSINIAN BUSHBUCK.—*Tragelaphus scriptus decula*. George L. Harrison, Jr.  
Skull, horns.

GENUS *STREPSICEROS*.

GREATER KUDU.—*Strepsiceros kudu*. Alexander Brown. Horns. [Plate XVII, Fig. 4.]  
GREATER KUDU.—*S. kudu*. John W. Norton. Skull, horns and scalp.

GENUS *TAUROTRAGUS*.

COMMON ELAND.—*Taurotragus oryx*. John W. Norton. Skull, horns and scalp.

GENUS *ADDAX*.

ADDAX.—*Addax naso-maculatus*. Edgar F. Randolph. Horns.

GENUS *PANTHALOPS*.

CHIRU.—*Panthalops hodgsoni*. William Jamrach. Horns. [Plate XVI, Fig. 7.]

GENUS *ANTILOCAPRA*.

PRONG-HORNED ANTELOPE.—*Antilocapra americana*. John W. Norton.  
Mounted head. ♀

PRONG-HORNED ANTELOPE.—*A. americana*. John M. Phillips. [Fig. 22.]  
Mounted head.

## CARIBOU AND MOOSE

GENUS *RANGIFER*.

OSBORN CARIBOU.—*Rangifer osborni*. Emerson McMillin. Mounted head. [Fig. 17.]

GRANT CARIBOU.—*R. granti*. Emerson McMillin. Mounted head.

GRANT CARIBOU.—*R. granti*. Emerson McMillin. Mounted head.

GRANT CARIBOU.—*R. granti*. Emerson McMillin. Mounted head.

GRANT CARIBOU.—*R. granti*. Emerson McMillin. Mounted head.

GRANT CARIBOU.—*R. granti*. Emerson McMillin. Mounted head.

WILD REINDEER.—*R. tarandus*. Ruthven W. Pike. Antlers. [Plate XVII, Fig. 3.]

WILD REINDEER.—*R. tarandus*. Fred. Sauter. Antlers. [Plate XVII, Fig. 2.]

GENUS *ALCES*.

ALASKAN MOOSE.—*Alces americanus gigas*. Emerson McMillin. [Fig. 15.]  
Mounted head.

ALASKAN MOOSE.—*A. a. gigas*. Emerson McMillin. [Plate IX.]  
Antlers, skull and scalp.

ALASKAN MOOSE.—*A. a. gigas*. Emerson McMillin. Antlers, skull and scalp.

ALASKAN MOOSE.—*A. a. gigas*. Emerson McMillin. Antlers, skull and scalp.

ALASKAN MOOSE.—*A. a. gigas*. Emerson McMillin. Antlers, skull and scalp.

ALASKAN MOOSE.—*A. a. gigas*. Emerson McMillin. Antlers, skull and scalp.

## DEER

GENUS *CERVUS*.

ARIZONA WAPITI.—*Cervus merriami*. Ferdinand Kaegebehn. [Plate XVI, Fig. 2.]  
Antlers and skull.

OLYMPIC WAPITI.—*C. canadensis occidentalis*. [Plate XVI, Fig. 3.]  
Ferdinand Kaegebehn. Antlers.

AMERICAN WAPITI.—*C. canadensis*. Thomas D. Leonard. [Plate XVII, Fig. 1.]  
Mounted head. ♂

AMERICAN WAPITI.—*C. canadensis*. John W. Norton. Mounted head. ♀

MARAL DEER.—*C. elaphus maral*. Ferdinand Kaegebehn. [Plate XVI, Fig. 5.]  
Antlers and skull.



GENUS *BLASTOCEROS*.

MARSH DEER.—*Blastoceros paludosus*. Edgar F. Randolph. [Plate XVII, Fig. 5.]  
Antlers.

SWAMP DEER.—*B. campestris*. Edgar F. Randolph. Antlers.

GENUS *ODOCOILEUS*.

MULE DEER.—*O. hemionus*. Ferdinand Kaegebehn. Antlers. [Plate XVI, Fig. 1.]

DESERT MULE DEER.—*O. hemionus eremicus*. [Plate XVI, Fig. 4.]  
Ferdinand Kaegebehn. Antlers.

MULE DEER.—*O. hemionus*. John W. Norton. Mounted head. ♀

WHITE-TAILED DEER.—*Odocoileus virginianus*. Dexter M. Gleason.  
Skull and "dag" antlers.

TRINIDAD WHITE-TAILED DEER.—*O. nemorivega*. C. William Beebe. Antlers and skull.

TRINIDAD WHITE-TAILED DEER.—*O. nemorivega*. C. William Beebe. Antlers and skulls.

GENUS *FELIS*.

## FELINES

EAST AFRICAN LION.—*Felis leo*. George L. Harrison, Jr. Two skulls.

GENUS *URSUS*.

## BEARS

ALASKAN BROWN BEAR.—*Ursus merriami* ? Emerson McMillin. [Plate XII, Fig. 1.]  
Mounted head.

ALASKAN BROWN BEAR.—*U. merriami* ? Emerson McMillin. [Plate XII, Fig. 2.]  
Mounted head.

ALASKAN BROWN BEAR.—*U. merriami* ? Emerson McMillin. [Plate XII, Fig. 3.]  
Mounted head.

ALASKAN BROWN BEAR.—*U. merriami* ? Emerson McMillin. [Plate XII, Fig. 4.]  
Mounted head.

ALASKAN BROWN BEAR.—*U. merriami* ? Emerson McMillin. [Plate XII, Fig. 5.]  
Mounted head.

ALASKAN BROWN BEAR.—*U. merriami* ? Emerson McMillin. [Fig. 16.]  
Rug; head mounted.

ALASKAN BROWN BEAR.—*U. merriami* ? Emerson McMillin.  
Rug; head mounted.

ALASKAN BROWN BEAR.—*U. merriami* ? Emerson McMillin.  
Rug; head mounted.

ALASKAN BROWN BEAR.—*U. merriami* ? Emerson McMillin. Skull. [Plate XII.]

ALASKAN BLACK BEAR.—*U. americanus*. Emerson McMillin. [Plate XII, Fig. 6.]  
Mounted head.

ALASKAN BEAR.—*Ursus* ? Lieut. G. T. Emmons, U. S. N. [Fig. 21.]  
Extraordinary bear claw.

GENUS *ODOBAENUS*.

## WALRUS

PACIFIC WALRUS.—*O. obesus*. Emerson McMillin. Mounted head. [Plate XIII.]

PACIFIC WALRUS.—*O. obesus*. Emerson McMillin. Mounted head. [Plate XIII.]

PACIFIC WALRUS.—*O. obesus*. Emerson McMillin. 7 pairs of tusks. [Plate XIII.]

PACIFIC WALRUS.—*O. obesus*. Madison Grant. Pair of tusks. [Plate XVI, Fig. 8.]

ATLANTIC WALRUS.—*Odobaeus rosmarus*. John R. Bradley. [Plate XIV, Fig. 3.]  
Mounted head. ♂

## SUMMARY

BISON, BUFFALOES AND OTHERS.....	5	Species	5	Specimens
MOUNTAIN SHEEP .....	5	"	16	"
GOATS .....	2	"	3	"
ANTELOPES .....	21	"	38	"
CARIBOU, MOOSE AND DEER.....	14	"	27	"
FELINES .....	1	"	2	"
BEARS .....	2	"	11	"
WALRUS .....	2	"	11	"
	53	"	113	"













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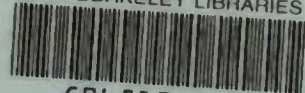
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